American Journal of Public Health
and THE NATION'S HEALTH

Volume 29 April, 1939 Number 4

Is the Health Officer Fulfilling His Responsibility in Relation to the Nursing Program?*

GRACE ROSS, R.N., F.A.P.H.A.
Director, Division of Nursing, Department of Health, Detroit, Mich.

TO be given an opportunity to discuss this subject is a great privilege, because the subject is an important and timely one. In trying to reach an answer it seemed better to find one based on the health officer's report of his own practical performance in relation to the nursing program at the present than one based on anybody else's opinion. Eighty-two questionnaires were sent to health officers in cities having a population over 100,000. Sixty, or 74 per cent, replied promptly. Of these, 52, or 63 per cent, presented comparable information and were received in time to be studied. This information is in reference to 2,937 nurses, about one-fifth as many as used by Marian G. Randall in her splendid report.[1] This is a study made in 1937 for the National Organization for Public Health Nursing and is highly recommended to those health officers who wish a comprehensive, country-wide view of this subject. Five health officers who replied buy their public health nursing service from an already well established, unofficial public health nursing agency. As they function quite independently of the health officer, their data, and also those of the Detroit Health Department, have not been included here.

All but 2 health officers, *i.e.*, 49, provided budget figures. Of these, 45 show a per capita rate for health work of less than one dollar, and 4 a rate of over one dollar. The information requested was limited to the several health services which are included in the Annual Health Conservation Contest, usually called the preventive medical services. The figures given indicate great differences in the number of official public health nurses considered necessary to carry out these services. The amount of money which communities are willing to pay for health may be one reason for this variation. The ratio in 52 cities varies from one official public health nurse for 4,000 to one nurse for 41,000 of the population. Eighteen per cent had one nurse for 5,000 or less, 4,000 being the minimum; 55 per cent had one nurse for 5,000 to 10,000; 14 per cent had one nurse for 10,000

* Read at a Joint Session of the Health Officers and Public Health Nursing Sections of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 27, 1938.

to 15,000; 14 per cent had one nurse for 15,000 and over, one of the latter being 32,000, another 41,000.

The importance of the public health nursing program to the health officer is probably reflected better in the percentage which his nurses bear to his total personnel. Forty-six cities gave answers which show the following: In 20 per cent of the cities, less than 25 per cent of the staff are public health nurses; in 85 per cent, the nursing staff is less than 50 per cent of the total; in 15 per cent, the nursing staff is 50 per cent or more of the total personnel. One city runs as high as 73 per cent; another, 80 per cent. It is interesting to note that in the cities having more than one dollar per capita to spend, the percentage of nursing staff varies from 22.9 per cent to 80 per cent.

The backbone of all public health nursing and the secret of its effectiveness is the preparation of the nursing staff. The health officer predetermines the success of his nursing staff when he accepts the qualities and qualifications which each nurse possesses. We are glad that it has not been necessary for each health officer to make a study individually of this problem, because the National Organization for Public Health Nursing has already done so. The standard known as "Minimum Qualifications for Those Appointed to Positions in Public Health Nursing"[2] is the result of this very careful study and it was accepted by the American Public Health Association in January, 1936. Because it is recognized as a minimum standard, which is already surpassed by a few departments, it is to be hoped that fewer official health departments will continue to fail in meeting it than is true at present. Only 23 per cent meet these minimum standards; 42 per cent reply that they do not; and another 35 per cent failed to answer.

A study of the questionnaires uncovers a possible way through which a change might be accomplished. Forty-six, or 69 per cent, of the departments are under civil service. Sixty-four per cent of those departments with less than minimum standards are under civil service. It is obvious that improvement should come through selling the facts to civil service commissions.

In reading over the civil service requirements presented, it is seen that their regulations vary from requiring an "R.N.," which may mean no standards which could contribute much to public health work, to "college matriculation and a certificate in public health nursing or its equivalent." Some lay great store by the "R.N." In most states the "R.N." standard is not even a minimum standard for bedside nursing. It is a compromise reached between the supporters of those who wish the community to be properly nursed and the supporters of those who wish to prey on the community. In many states the "R.N." does not mean that the nurse has had the college education so desirable for a public health background, nor even a first rate high school education. As a matter of fact, at present there are laws in 40 states which require the "R.N.," but only 26 of these include a high school education as a necessary means of obtaining it.[3] The "R.N." does not mean that the nurse has been graduated from an affiliated hospital wealthy enough to provide her with adequately prepared teachers nor having patients enough to provide her with sufficient experience even in the limited services which it offers. In most states it is not necessary for the nurse to have practical experience in the care of communicable diseases, tuberculosis, syphilis and gonorrhea, or in mental nursing, and many nurses are still found to be inadequately prepared to do orthopedic nursing.

We realize that for financial reasons

the need for hospitals to exploit student nurses is still acute. That, however, is no reason why the public health field must accept the graduates of those schools of nursing which still fail to provide student nurses with the fundamental preparation upon which later good public health nursing can be built. As an example of the difficulties encountered, in Michigan, whose state law does not require a high school education, the nursing schools have all voluntarily adopted the high school as a minimum standard; yet the following deficiencies in experience, upon which public health work is built, are still to be found: 69 per cent of the schools do not offer actual experience with tuberculosis patients; 60 per cent with other acute communicable diseases; 63 per cent with nervous and mental patients; and as in other states, information concerning syphilis and gonorrhea is not even collected. It is therefore not surprising that 72 per cent have not been exposed to public health experience in any form. The health officer needs to correct the ideas of the Civil Service Commission and to help them understand that his nurses must have adequate fundamental undergraduate experience in these necessary fields, no matter what the state is willing to call them. In other words, the minimum standards of the National Organization for Public Health Nursing are basic requirements for good public health nursing in every state and there cannot be good public health nursing as long as Civil Service Commissions adopt anything less than these minimum standards.

It is most heartening to know that these N.O.P.H.N. minimum qualifications have been adopted by some Civil Service Commissions at the request of health officers, in fact, 33 per cent of the departments using these standards are official departments under civil service. Health officers will find helpful material for this purpose on page 22 of Miss Randall's book already referred to. One health officer describes his experience in these words, "On last requisition a copy of the N.O.P.H.N. requirements was sent to civil service commissioner and requested that it be followed. It was." These health officers, real leaders, deserve the greatest admiration and praise of every public health nurse.

A word should be said concerning the personality and background of the public health nurse. It is certain that public health nursing is not promoted by the health officer who accepts inferior nurses and then finds it impossible to treat them with respect. Dr. John E. Gordon, Professor of Preventive Medicine and Epidemiology of the Medical School of Harvard University, has recently returned from Central Europe where he was directing special studies for the Rockefeller Foundation. In describing the nurses of the Balkans, he speaks of two kinds, those who dominated the field before the war and those since the war. He mentions the former as coming from the kind of homes which usually provide the maid service of any community and the latter as coming from the kind of homes which produce professional people. It is a very hopeful sign when a distinguished member of the American Public Health Association is aware of and sensitive to such far-reaching differences.

It is very encouraging to find that 40 per cent of health officers expect their nurse directors to spend some time in studying the qualifications of the nurses available, and that after discussing the facts with them the health officers employ the nurses in relation to the facts. Five health officers report political interference even though they are under civil service. One puts it "trying to tell me which one in three."

Of the 52 health departments only

28, or 54 per cent, have a nurse to direct the nursing program as a whole. That anybody can direct a public health nursing staff better than a well chosen public health nurse properly prepared for that responsibility is hardly worthy of our discussion. Public health nursing is a practical educational program which uses the content of the nursing course and the technics of public health nursing to put over health information and to teach the public. The person who can direct nurses best in the use of these tools for this purpose is a nurse who has been instructed in them.

There needs to be unity and oneness in purpose to make a service strong and conscious of its group responsibility and it is achieved best by a concentration of direction and leadership. The only person who promotes all phases of the nursing program without prejudice is the person who is not limited to any one part of it. That is the nursing staff director.

The health officer is entitled to the best prepared director of nurses that can be found. He should then lend an ear to all the progressive suggestions she presents for his understanding and support and actively to promote all that improves the quality of his nursing service. It would be fair to say that the health officer has not done the best for his service when he has engaged a director of nurses who has no progressive ideas to offer for his support.

It cannot be said that the salaries of directors, on the whole, stimulate nurses to pursue the necessary additional postgraduate education, because most of them are inadequate. Seventeen, or 60 per cent, of those departments having a nurse director give yearly salary figures. They range from $1,800 to $3,600, with one exception, $6,500. Only 5 have a salary of $3,000 or more, and 11 have less than $2,800. The minimum qualifications for directors include a college degree as desirable educational preparation; graduation from a hospital school which has available 100 patients daily and experience which includes all the extra services listed above; at least one academic year in public health, theory and practice of supervision; 2 years of public health work under qualified supervision; several years' experience as a supervisor and if possible as an assistant director. She should have superior administrative ability and qualities of leadership. Also, in the interest of the department many demands which cost money are made upon the director and these make these poor salaries poorer because, while she cannot afford to finance them, as a director of nurses she cannot afford to miss them. In the light of these facts and the salaries quoted it does not appear that many health officers appreciate their responsibility to the head of their nursing service.

Regardless of the splendid public health preparation which some health officers require of nurses before giving them a position, supervision is still an essential. Each health department has its own particular policies, technics, rules and regulations, in which the nurses must be instructed. Constant improvement in department methods makes further changes necessary, and in every worth while occupation stimulation and inspiration must be given attention. The well prepared supervisor is the answer. Since her importance has become better appreciated and because supervision now includes several new services which have been added in recent years—nutrition, social diseases, mental hygiene, and others—the old accepted standard of 1 supervisor to each group of 10 nurses has proved to be inadequate. In view of this, it is disappointing to find that 67 per cent of the health officers are not able to report that they provide their nursing division with even this minimum, insufficient amount of supervision.

Two staffs of 60 and over have only 2 supervisors or 30 nurses apiece. Ten staffs ranging from 3 to 21 have no supervision whatever. These are not errors because while other salaries are given supervisors' salaries are not given.

Most administrators find that nurses on the whole make poor clerks and nurses accept this criticism. It is money wasted whenever a nurse's salary is used this way because clerical assistance should cost less and nurses should be doing the health work which otherwise will go undone. It may be easier to add nurses to the staff than it is to add clerks, but whatever the explanation it is obvious that most nursing staffs would do better and more nursing work if given enough clerical assistance to eliminate at least the routine clerical work. Especially is this true in clinics. Forty departments gave replies to this question. Two had no clerks whatever. Of those remaining, 45 per cent had 1 clerk for 10 nurses or less, and 15 per cent had the admirable record of 1 clerk to 5 nurses or less. That leaves 55 per cent that have 1 clerk for 10 nurses or over; 20 per cent of those are for 20 nurses or over. One staff has the rate of 1 to 120.

In regard to staff education, thoroughgoing programs of continuous staff education of college level are found only in 11 of the 51 cities answering and where these occur there is a full-time nurse director. Fifty per cent of the departments had no program of staff education in spite of the fact that the basic requirement in all of them is less than the acceptable minimum. Thirty-five per cent had some kind of program but there seems to be no planned program or definite objective in view. Where a certificate in public health nursing is the requirement for acceptance the need for continuous staff education may not be quite so urgent, but even here, with the constant growth and change which take place in the public health field, it is a question of how long the certificated nurse can remain useful when no continuous staff education program is offered to her. Three departments have monthly or "occasional" lectures. Four have "the state's program" and it is to the credit of 5 that they have a continuous staff education of college grade. One health officer who has a staff of 29 certificated nurses but no nurse director says he has weekly conferences and "more not necessary."

A study of the salaries given shows no definite convictions on the part of health officers in regard to them. It would be expected that the range, regardless of the prevailing regional induction salary, should be, for similar work, the same the country over. We find even within the same state a difference in the salary range which varies from $180 to $899. Under civil service induction salaries vary from $1,170 to $2,100, and in departments not under civil service from $1,200 to $1,500. A few departments which have adopted the N.O.P.H.N. minimum standards offer only $1,200, and a few departments which have no minimum standards offer an induction salary as high as $1,840. One commissioner states "We hire nurses at the regular price when occasion demands," but he did not quote "the regular price." Only 23 per cent of the departments offer annual increases. An additional 17 per cent offer them at 3 or 5 year periods or have temporarily suspended them. Sixty per cent showed no increases or left the question unanswered. One health officer has raises every 6 months, a plan which has many advantages.

If a profession wishes to draw to it those best prepared to make a contribution, it would seem that there should be some relationship between the salary offered by it and the preparation which is offered by the applicant. There is very little of such relationship in official public health nursing. Of

the 35 departments under civil service, 17, or 49 per cent, left blank the question, "Is a higher salary offered to nurses who have special preparation?" Fifteen, or 43 per cent, answered "no" and only 3, or 5 per cent, "yes." One of these was qualified by the statement, "only with the permission of the mayor." Of the 17 not under civil services, 59 per cent did not answer, 29 per cent answered "no," and only 12 per cent answered "yes." So, regardless of the system, in less than 10 per cent of the departments have the salaries any relation to what the nurse can contribute. It is a pleasure to add that one commissioner said the idea "was approved" and another that it "was contemplated."

It is crediting nurses with more altruism than they possess to suppose that salary is not an important matter to them and that they are so eager to serve the community well that they will spend hundreds of dollars for additional education on which they expect no financial return. If it could be known that nurses who would obtain at least certificates in public health nursing would receive higher salary and recognition, more nurses would get them. Staff members would then know what they were doing immediately they started to work. At the present time, those who criticise the quality of public health nursing speak as though all employed public health nurses knew what they were doing. Of the 52 departments, only one demands that its nurses know public health nursing on acceptance. All the rest accept nurses with the minimum standards or less. So, strictly speaking, a just criticism of nurses' work is possible only in this one department.

There are some other less important points, discussion of which might prove helpful, but time does not permit it.

To summarize, some health officers are fulfilling their responsibility admirably in relation to the nursing program and some admirably only in some respects. There are ways however in which many others could help a great deal more: first, to realize that it is an impossibility to get the right kind of service from their staff unless every nurse on it has the right background, the right educational and professional education, the right kind and amount of public health nursing preparation, and the right content of health information. If these are all obtained before coming to the staff, so much the better; if not, it must be understood that the nurse will be on the staff a long time before she thoroughly masters her teaching job. Second, a nurse already prepared as a public health nurse should be paid according to what she brings to the department. She is a specialist and as in every other profession her additional education and experience should be recognized and compensated. Third, it must be remembered that nurses are human like everyone else. All the aids to sustain morale, like recognition for unusual service and increases in salary, and all those aids to improvement in work, like programs of continuous education and adequate direction and supervision, are indispensable.

It has been said that no division of nursing can rise above the level of performance set by its health officer and it should also be said that no division of nursing will get far without his active and understanding support. The quality of the public health nursing program in official agencies countrywide is, in the last analysis, in the hands of health officers; if it is to become grade A only they can decide.

REFERENCES

1. Randall, Marian G. *Personnel Policies in Public Health Nursing.* Macmillan Co., 1937.

2. Education Committee of the N.O.P.H.N., Minimum Qualifications for Those Appointed to Positions in Public Health Nursing. *Pub. Health Nurs.*, Mar., 1936. Reprints free of charge—N.O.P.H.N., 50 W. 50th St., New York, N. Y.

3. Scheffel and McGarvah. *Jurisprudence for Nurses.* Lakeside Publishing Company, New York, 1938, pp. 178–179.

Administrative Problems in a Delivery Nursing Service*

W. F. WALKER, DR.P.H., F.A.P.H.A., AND
E. P. BOWERMAN, M.D.

Director, Division of Health Studies, The Commonwealth Fund, New York, N. Y.; and Health Officer, Gibson County Health Department, Trenton, Tenn.

IN 1935 a study of obstetrical practices and facilities for maternity care was made under the auspices of the Gibson County, Tenn., Medical Society. Among other things, this study recommended that a delivery nursing service be organized as an adjunct to the existing public health program which had been carried on since 1922. The purpose of this paper is simply to indicate the administrative problems met in initiating and carrying on this service and how they were handled.

A WORD ABOUT GIBSON COUNTY

Gibson County, an essentially rural area, is in west Tennessee. It has a population of 49,000, of which 21 per cent are Negroes, and 23 per cent live in the three towns with populations ranging between 3,000 and 5,000. The county is moderately well to do for west Tennessee with an estimated per capita spendable money income of $211 annually.

At the time of the study (1935) the personnel of the health department consisted of a health officer, an assistant health officer, a supervising nurse, 5 staff nurses, a sanitary officer, and 2 clerks. The staff was giving due consideration to the acute communicable disease problem of the county, providing the usual services for infant, preschool and school hygiene, and, through special activities, making an attack upon both syphilis and tuberculosis. Due to the health officer's personal interest and training, possibly slightly greater emphasis was given to maternity hygiene service than otherwise would have obtained in the department prior to the organization of this formal service. The county health department, working in close coöperation with the local physicians, provided, in 1937, antepartum nursing supervision for 51 per cent of the mothers and instructive postpartum care for 52 per cent.

Gibson County is unique among rural southern counties with a large colored population, in that there are practically no midwives. Of the 800 births which occur annually, 93 per cent are delivered by physicians in the home, only 1 per cent occur in hospitals and about 6 per cent are attended by midwives, grandmothers, or convenient neighbor women.

The study of maternity care already referred to revealed that an appreciable

* Read at a Joint Session of the Health Officers and Public Health Nursing Sections of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 26, 1938.

number of maternal deaths, stillbirths, and infant deaths might have been prevented had the physician had the advantage of a trained person to assist him. For this reason, and to make the health department's service to the case continuous rather than interrupted at the most crucial time, the delivery nursing service was organized.

The county health department seemed to be the logical agency to provide this service since it was well thought of by the public and physicians and was already providing antepartum and postpartum nursing service to half the mothers.

REGULATIONS

It was early recognized that there would have to be very definite regulations governing the use of the service and that these must be understood and accepted by the local physicians in order to avoid misunderstanding and to reinforce rather than undermine previous teaching as to the value of antepartum and postpartum care.

The entire plan was, therefore, discussed at the regular meeting of the medical society by the health officer and the following principles worked out:

1. The service is available to all doctors practising in the county for patients living in the county.
2. Patients who receive the delivery service must have been under antepartum supervision for 4 months—except in case of emergency.
3. The service is provided for any case in the county in the event of a complication in which nursing assistance is necessary, regardless of the duration of the antepartum supervision.
4. Both patient and doctor must desire the service.
5. The doctor must not leave an obstetrical case for the nurse to watch while he attends to the rest of his practice. In general, the nurse accompanies or follows the doctor to the home. When he leaves, she leaves.

Experience has shown that the regulations are both necessary and sound. Success in their observance and general acceptance by the profession was no doubt considerably augmented by extension teaching in obstetrics under the auspices of the State Medical Society as a part of its program of postgraduate education. This course of lectures, which laid particular emphasis upon antepartum care and asepsis, was given in the county just as the delivery nursing service was being launched.

Those familiar with the public health work in Gibson County were agreed that the generalized program already in existence should be continued and the delivery service added to it with as little change in emphasis in other fields as possible. This required additional nursing staff and equipment for the county health department. On the basis of 2⅓ births a day, on the average in the county, and taking into consideration both uneven daily distribution and that the health department might well expect to assist in at least half of the cases, it was believed that a minimum of 2 nurses would have to be added to the existing field staff of 5. It was also recognized that not all deliveries would be given nursing service and that this additional staff would very likely be adequate for the case load which ultimately developed.

TRAINING OF PERSONNEL

Though the field nursing staff in the county was well trained, at the time none had had any special training in obstetrics. Arrangements were made for a special course for the supervisor and one staff nurse at the Chicago Lying-In Hospital. Approximately 1 month was spent in in-patient service acquainting them with modern obstetrics under the most favorable conditions and 2 months were spent on the home delivery service which offered many of the difficulties that would be encountered by the nurses in rural areas. Having in mind the routines and procedures which were current at the

Chicago Lying-In Hospital, the local staff, with aid from the state department of health and others, worked out routines which were adapted to local conditions and which experience has shown can be carried out satisfactorily in a rural community. These nursing technics were then taught to the remaining members of the staff by office demonstration using a large doll and subsequently through supervised deliveries.

EQUIPMENT

One of the recommendations of the maternity study was that the health department offer sterile equipment for the use of local physicians in home deliveries. A sterilizer was installed and a list of equipment and supplies was set up which the nurse would carry to the home. They included the items necessary for the conduct of normal labor, emergency equipment, and medications. The details of the sterile and other equipment which were carried with the costs are available on request. The sterile supplies required on every case were wrapped together and carried in a fiber case. The remaining equipment and medications are carried in a leather bag. This includes scrub-up material, intravenous set, sterile packing, tracheal catheter, records, and medications.

In setting up the list of sterile supplies due consideration was given to items which the mother would have available in the home and particular attention was given by the nursing staff to seeing that these materials were available well in advance.

It was intended that the physicians should provide all medications, but to meet emergencies which are bound to arise, caffeine, adrenalin, ergotrate, and pituitrin are carried. It was also intended that the doctors should carry, in addition to their own instruments, suture material, though experience has shown that it is desirable to have sutures and needles available.

Before initiating the delivery nursing service, the antepartum and postpartum programs were altered slightly in order to insure better continuity with the partum service. Copies of these outlines of nursing procedures are available on request.

SCHEDULE

The most difficult problem to be handled in setting up a delivery nursing service is scheduling this activity to fit into other parts of the program. If the service is to be successful, a nurse must be available at all times, which means shifting the program from an 8 hour to a 24 hour base, and from a 5½ to a 7 day week. It was realized from the first that, if this service were to have any value in improving general community relationships and influencing other fields, it must be set up as a function of the generalized service with all of the staff nurses carrying delivery service at some time. Furthermore, if the load which was anticipated materialized, two nurses could not possibly carry it as a specialized service. Even when scheduled as a part of a generalized service two alternatives were open: (1) to have each nurse carry the deliveries in her own district, which would provide greater continuity of service but lead to some embarrassment to the regular program through interruption; or (2) to have one or two nurses on call each day and relieve them in whole or in part from their district responsibilities for the day on delivery duty. This latter plan was finally decided upon as it was felt that it would:

1. Promote unity of purpose in the nursing staff
2. Avoid wasted time in case no delivery was in progress as the nurse on second call could proceed with other phases of her program
3. Would, because the value of this service was easily apparent to the public, strengthen

the nurse's approach and contacts with the community

4. Would place a definite limit on the continuous hours of obstetrical duty and thereby lessen physical strain.

Under this plan, two nurses were always on call, one on first and one on second call. If we designate the 7 nurses as 1, 2, 3, 4, 5, 6, 7, nurse 1 on first call remains in the office during the day until a call is received. Nurse 2 on second call does field duty nursing until the first nurse 1 is called out. This is determined by periodic telephone calls to the office by second nurse 2. When nurse 1 is called out, nurse 2 returns to the office in order to be ready for a second case. At night (4:30 P.M. to 8:00 A.M.) both nurses must be within reach of the local telephone operator to whom they report each evening at the close of the office. The nurse on second call does not take a case unless the first nurse at the time is busy at another delivery. After a 24 hour tour of duty beginning at 4:30 P.M., nurse 1 goes off duty completely for 24 hours, nurse 2 becomes first call nurse, and nurse 3 becomes second call nurse, and so on.

In this instance there were 7 nurses to schedule and the tour of delivery service would have fallen on the same day each week if they proceeded in rotation. To avoid this each nurse was given 1 week without delivery service every 7 weeks. In case of sickness or vacation, the supervising nurse fills in for the staff nurse. Ten months' experience has proved that this schedule will work.

RELATIONS WITH PRIVATE PHYSICIANS

On the whole, the delivery service has been welcomed by the private physicians. It is a health department service of direct and tangible assistance to the physicians individually and collectively in their private practice. As might be expected, some are inclined to view the service simply as nursing assistance furnished them and give little thought to the public health education which is essential to the best results. A few are inclined to criticise the requirement that cases be registered for medical and nursing antepartum supervision by the 5th month. While it is true that the doctors are frequently called to cases who have not been under antepartum supervision, and while nursing assistance would be desirable, the better men appreciate the long time advantage of this regulation. Experience thus far indicates that many more cases are reporting earlier for antepartum care than formerly and that the delivery service functions more smoothly in those cases who have had antepartum supervision and who have made suitable preparation for the baby's birth.

Some physicians have criticised the service because the nurse arrives too late. We are still of the opinion, however, that it would be both unwise and uneconomical to provide nursing care for a longer period than the physician is in attendance, as this would inevitably lead to situations in which the nurse would be forced to act as a midwife. The fact that the service can work almost perfectly so far as the doctor is concerned has been demonstrated by the physicians who have been the most extensive users of the service and who are in the main the best obstetricians. They, in general, determine the stage of labor before calling the nurse and are completely coöperative in their attitudes.

To determine with some definiteness the medical attitude, a brief letter and questionnaire were sent to the 43 physicians practising in the area. Of the 30 men who replied, only one expressed any doubt as to the worth-whileness of this service as a function of the health department. Yet, he admitted its advantages to him in his private practice.

Among the advantages which are cited were the following:

"It permits me to do a safer and better delivery. It makes a favorable impression on the patient to see me try to keep a sterile field. It encourages the patient to come in to the doctor earlier. It makes more of them come in for postpartum examinations."

"Makes possible early antepartum care; Kahn reports in early pregnancy; better able to educate the public to modern technic of delivery rather than blind deliveries under sheets; better aseptic conditions; nurses valuable in complicated deliveries."

And finally the physician who has probably used the service most and has the largest number of deliveries in the county:

"I have never before in my life or practice had the opportunity of using a nurse in delivery work and I have found it the best help to both me and my patients and I hope it will continue as long as I continue in practice."

These opinions of competent men are typical of the feeling of those doing the major obstetrical job.

Instances have occurred of unanimous endorsement of public health programs by physicians where they were paid a nominal fee for services rendered. It is gratifying to see that in this instance a service primarily designed to assist the doctor to render better obstetrical care without any personal compensation received wholehearted endorsement.

PRACTICAL DIFFICULTIES

We should like to mention a few practical difficulties encountered. The reaction of the nursing staff to this radical change of program presented a serious problem for a time. Weather and roads have had a considerable bearing upon this reaction, for, although Gibson County is a progressive and prosperous agricultural district, many of its roads are only graded dirt which in winter or rainy weather become a sea of mud making it impossible at times to reach some homes by automobile. Insanitary and poorly heated homes add to the unpleasantness of the duty. These physical factors, the unusual routine of being on call, the occasional long periods of continuous duty, have frequently made a nurse wish that she were somewhere else where a delivery service was not a part of the program. This reaction on the part of the nurse was much more intense when the service was just begun than after 10 months' experience.

It is possible with the schedule as now arranged for a nurse to have 56 hours of continuous duty as an 8 hour day of field service always precedes 48 hours on call. Though this limit has never been reached, it has been approached on three occasions. This situation could, of course, be relieved by having a day of field duty intervene between the period of second and first call or by having the delivery service day begin in the morning instead of at night. It is felt by the staff, however, that this would add complexities to the schedule and that they would prefer to have consecutive delivery service and consecutive field time.

The schedule of field work has of necessity had to be adjusted to provide for the priority demands made by the delivery service. This has necessitated the planning much further in advance of clinics, community meetings, school examinations, and similar services. With the schedule of delivery duty planned for at least 3 months in advance, however, the difficulty in this field has been minimized. By actual count, the time devoted to field duty by the staff because of the days off is slightly less than before the service was inaugurated. It is still too early to draw any final conclusions as to whether or not this will seriously affect the program. It seems probable that even with the reduced number of visits, however, better relationships established in the home be-

cause of this service will increase the effectiveness of other visits made.

Because of the regulations set up requiring the registration of cases before the 5th month of pregnancy, except for people moving into the county and complicated cases, there has been some complaint on the part of physicians that the service does not reach all of the individuals needing it. Experience to date indicates that the service has been used most frequently by the more prosperous and better informed people and that no adequate means has thus far been found to bring the group with less initiative and forethought under supervision.

As is natural on a staff of this size, that desire for professional advancement, opportunities for more desirable positions, etc., lead to staff changes. This has necessitated careful selection of candidates for staff appointments to insure their willingness to undertake the service, and also a continued program of staff education.

SUMMARY

In the first 10 months the department attended 305 deliveries resulting in 293 live births, 12 stillbirths, no maternal life was lost, and but 5 infants died within the first month. The staff has devoted a total of 1,804 hours to this service, an average of 5 hours and 50 minutes per delivery, which includes staff nursing time, time spent by the supervisor devoted to staff training and answering of false calls. Fifty-three per cent of the calls were attended by the nurse on first call and 47 per cent by the nurse on second call. The staff has given 1,336 hours overtime service and has been allowed 2,024 hours extra time off in compensation—virtually time and a half for extra time service.

In the light of this experience it seems clear to us that:

1. A delivery service can be set up as a function of a county health department and have its work appreciated by the public and whole-heartedly endorsed by the physicians
2. Though the addition of such a service to a health department's program where there is a reasonably adequate nursing staff will influence to some degree time and emphasis placed upon other parts of the program, it has not, in this instance, in the opinion of the health officer and staff of the state health department, seriously interfered with the programs in other fields
3. Though the initiation of a delivery nursing service places a burden upon the public health nursing staff which they have heretofore been unaccustomed to, it is evident that the schedule can be so arranged as to work no undue hardship upon the staff or make the work so unattractive to the public health nursing profession that insuperable difficulty is found in finding suitable personnel.

DISCUSSION

W. C. WILLIAMS, M.D., F.A.P.H.A.

State Commissioner of Health, Nashville, Tenn.

DRS. Walker and Bowerman have presented a very comprehensive discussion of the local administrative problems encountered in the planning and conduct of an obstetrical nursing delivery service. The program as outlined is of interest, not only from the standpoint of local considerations, but also from it we hope to determine the most feasible procedures, if any, that may be utilized in setting up similar service elsewhere. It is particularly desirable that we be able to evaluate not only the results of this special activity in terms of public service and decreasing maternal morbidity and mor-

tality but that we give careful consideration to the possible ways in which the service may be extended to areas where the population and area per nurse is not so favorable as in Gibson County where each nurse is not required to be on first call more than once a week.

The question of a *special* versus a *generalized* service is also worthy of some consideration. Obviously it would not be possible for the small health department to plan a very definite program—even the department with a staff the size of the Gibson unit could not plan other work in advance unless there was some systematic method of scheduling assignments for this service. While it can truthfully be said that the program is carried on by the general nursing staff and that there is no apparent interference with the general nursing program, it is in reality a special nursing service to which each nurse of the staff of eight contributes a specified and periodic pro rata of time. We are not yet in position to chart a course to be followed by the local departments with an admittedly inadequate nursing staff.

That the service is popular with the general public there is no doubt. The physicians utilizing it have only commendation for the assistance given. The skeptical and disturbed attitude of the nursing staff at the beginning of the program has been largely dissipated. There is some evidence that the work does appeal to a good percentage of the nurses just entering the public health field as well as to the more experienced group that had grown accustomed to daylight saving work hours only. The preliminary analysis of infant and maternal mortality indicates that the health and lives of mothers and babies are being conserved.

To say the least, we are digging for solid rock upon which our future program will be built. Perhaps we have already laid the foundation for the structure that is surely to come as a part of a hitherto unprovided service.

A Critical View of Nurses and Nursing Programs*

FELIX J. UNDERWOOD, M.D., F.A.P.H.A.

Executive Officer, State Board of Health, Jackson, Miss.

PUBLIC health nursing may be defined as an organized community service rendered by specially and adequately prepared graduate nurses. It includes the interpretation, application, and teaching of hygienic, medical, nursing, and social procedures to promote health, to prevent disease, and to stimulate correction of defects or conditions affecting healthful living.

A clear concept of the status of public health nursing in the administration of public health and its relation to other aspects of the modern health program is essential to sound and effective performance.

Public health nursing plays a vital part in almost every activity of health agencies and requires expert public health nursing guidance.

Factors needed in the development of an effective public health nursing service are a compact administrative organization, adequately qualified personnel, clearly defined objectives, promotion of better service through public health supervision and consultations, and blending of the program with other health activities.

Public health nursing is necessarily a coöperative undertaking. Under whatever auspices it may be organized, it must be developed with leadership of the medical profession and in close relationship to the work of teachers, social workers, institutions or agencies within the social, civic, and health fields, and particularly to official health activities and medical practice.

The health officer is recognized as the official leader in the health work of any community, responsible for the execution of a health program pertinent to local needs and one which meets accepted standards of public health practice coördinated with the state health program. The official public health nurse must act with his guidance and leadership.

It is essential for the medical director and the public health nurse to have a mutual understanding of policies pertaining to the objectives of the joint health service and its potential growth. He should delegate to her the responsibility for the development of the public health nursing details and technics. She in turn must keep him informed of public health nursing activities and consult him relative to the constructive development of her part of the program.

The wise health officer will expect the public health nurse to use initiative and will refer to her matters pertaining to public health nursing.

Careful consideration must be given

* Read at a Joint Session of the Health Officers and Public Health Nursing Sections of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 27, 1938.

the point where she in turn seeks the counsel of the health officer and abides by his decision. In other words, the public health nurse should never, in her desire to develop the general program, assume prerogatives belonging to the health officer. She may and frequently does by various methods influence his decision, but woe unto her if he interprets this as an intention to plan his program.

Sometimes in her zealous endeavor meticulously to perfect a program, she may acquire the habit of harping on petty difficulties which arise and which will often adjust themselves, at the same time missing the opportunity to encourage him by calling attention to constructive accomplishments.

The public health nurse must be informed and teach as she works, about personal, home, and community health, maternal and child health, nutrition and growth, communicable disease care and control, also social and mental attitudes and adjustments. She works with health officers, private practitioners, and personnel of agencies furnishing medical, civic, and social services. She also contributes indirectly to phases of sanitation, laboratory research, and vital statistics.

Field visits form an important item of the service. In the home as the public health nurse renders service, an opportunity is given to study the family as a whole in its environment, the purpose of the visit being threefold: to interpret and evaluate conditions relating to health problems, to render health service, and to stimulate health education.

By group instruction to various types of audience, the public health nurse multiplies her educational efforts, magnifies the importance of health, and popularizes health precepts. The public health nurse augments the quality of her work to the degree that she increases her teaching skill. She must be able and desire to stimulate interest in public health. She must understand and employ principles of positive teaching. She must adapt materials to the limitation of the learner and speak in terms which will be understood and utilized. She must acquire the habit of teaching while rendering service, use the psychological moment to vitalize and drive home facts, and as indicated give a touch of drama to arouse interest. After initial instruction a competent teacher summarizes to bring out vital points; also in order to form a basis for future teaching, she evaluates what the individual or group received from the instruction given.

Methods of evaluation employed by the public health nurse include study and interpretation of growth in information, in skills, in development of interest, in improved health and living conditions, and in better understanding of patrons as to their share and responsibility in the development of individual, home, and community health.

A sympathetic understanding must exist between teacher and student with special effort on the part of the teacher to discover the interest and needs of the student.

A successful public health nurse cultivates habits of continued growth, attends and participates in staff conferences, seeks aid from advisory service, reads professional and other good literature and takes advantage of advanced university training. This leads to a better understanding of the relation of public health nursing to society at large and the part not only played by the nurse but by the people served.

As the public health nurse becomes expert she plies her art with increasing skill. She influences the thoughts and emotions of those she serves, she calms and stabilizes, she inspires and motivates. In turn she is sustained by the absorbing work so full of human comedy, tragedy, despondency, and

hope. She develops reserve power, orderly thinking, deliberative planning, and disciplined emotions. She cultivates tolerance toward approved current change in trends and technics, and by coördinated efforts fuses technical and professional services into family and community life. When she thus integrates her work into the whole program her influence extends in ever-widening circles.

The test of the activities of the public health nurse is measured by the degree of acceptance and execution, on the part of the patrons, of her health teaching.

Possibilities and Means of Improving Dental Conditions in the United States*†

GUY S. MILLBERRY, D.D.S.

Medical Center, University of California, San Francisco, Calif.

IMPROVING dental conditions in the United States I assume means preventing dental disorders in children with the hope that as they reach maturity they will have healthy mouths and sound teeth, functioning normally and with comfort, which they may retain throughout life. On this subject I present a dental educator's point of view.

Improving dental conditions in bygone centuries consisted chiefly in relieving pain. Sporadic attempts in restorative dental art are recorded. About 250 years ago mechanical procedures came into vogue and the esthetic phase also gained some recognition. Only the wealthy or royalty received attention.

Complications arose because of biological unknowns. Then, with the advancement of biological and physical science and progress in technical skill and art, dentistry came to be recognized as a profession. Still the emphasis was laid on restoration and replacement.

At the beginning of the present century, dental faculties considered bacteriology of enough importance to warrant its introduction into their curricula. Putrefaction was known but not fully understood until this science brought forth the explanation. Other sciences—pathology, physiology, anatomy, biochemistry, metallurgy, and chemistry—added their contributions to the changing course of study.

About 50 years ago the preventive aspects of dental service began to be discussed and programs were initiated, notably in Strassbourg, Germany, and in Rochester, N. Y. As related to school children in America, this means of improving dental conditions developed slowly until 1910 when it swept from east to west across the country like an epidemic.

In many places the dental schools took an active part in this movement. Besides their participation in the organization of school dental clinics and in making school surveys, the preparation of persons to render more and better service in preventive dentistry was undertaken. The first courses for the training of dental hygienists were organized by Dr. A. C. Fones, of Bridgeport, Conn., in 1913. The idea spread until there are now 19 institutions offering instruction in this field and 32 states have licensed these hygienists.

* Read at a Joint Session of the Child Hygiene and Public Health Education Sections and the Oral Health Group of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 28, 1938.

† See also Editorial on page 375 of this issue for comments and varied opinions on this subject.

At first 1 year of high school constituted the admission requirement, followed by 1 year of professional training; a certificate was granted to those completing the course. Admission requirements were advanced gradually in some institutions to high school graduation, followed by 2 years of professional training, again leading to a certificate. Now in the University of California, 4 years of collegiate training are required for graduation and a degree of Bachelor of Science is granted. These trainees are health educators, supplementing in some instances their health education program with a prophylactic service.

Many dental hygienists are employed in private offices, where the educational program, if carried on at all, is individual. Office duties consist chiefly in periodic prophylactic service for adults, which has value in preventing the recurrence of dental disease. More can be accomplished in the prevention of dental disease by rendering prophylactic service to children at frequent intervals and they should be considered the most important group in the private practice clientele.

The health education programs which have been developed in the schools by dental hygienists have not accomplished all that was hoped, although some of them have been more efficacious than other types of programs. Hawaii is our best example of accomplishment.

Soon the possibilities of improving dental conditions in childhood through dental practice became evident to the dental educators, and dental students were all required to attend courses in children's dentistry. Didactic instruction was supplemented by clinical practice on children, and more recently technic courses in relation to the morphology of the temporary teeth and operative procedures have been required in the schools. Refresher courses for practising dentists, dealing with preventive dentistry especially for children, have been set up by dental organizations and departments of health throughout the country.

Dentists in practice began to specialize in children's dentistry. A pedodontic society was organized, later becoming the American Society for the Promotion of Dentistry for Children. It now publishes a periodical.

One dental school offers an optional curriculum with emphasis on the prevention of dental disease. The students registered in this course are not required to complete courses involving the replacement of missing teeth during the last 3 years of the curriculum. By substituting orthodontics for prosthesis, they may qualify for graduation and receive the degree of Doctor of Dental Surgery. The major part of their clinical experience in college and subsequently in practice is with children and young adults.

So much for the history of the development of the educational phase of improving dental conditions. What about the present need for improving dental conditions, or more pointedly speaking, preventing dental disease?

The health education programs conducted by dental hygienists have in some localities proved to be very effective in stimulating interest in taking care of the teeth. But these programs do not cope with the problem of providing service for children with decayed teeth and other dental lesions. Without some sort of educational activity, the effective demand for dental service is very low, for several reasons: ignorance, fear, inconvenience, and costs. But when interest is aroused, service for children should be available.

Fairly reliable estimates indicate that there are about 30,700,000 children aged 2 to 14 years, inclusive, and about 12,000,000 more aged 15 to 19 years, inclusive, in the United States. Most of them are in school or college. This group of 42,700,000 represents

about one-third of our population. All of them need some kind of dental service every year. If each of these children received 4 hours' dental service on an average each year, it would require the services of 89,000 dentists working 40 hours a week for 48 weeks a year to care for them. Each dentist would care for about 500 children a year. There are about 71,000 dentists licensed to practise in the United States, of whom perhaps 65,000 are actively engaged in private practice.

If a program of service for children were put into effect, the adult population would have to be forgotten in so far as dentistry is concerned. Would the older patients yield to the children? I doubt it. And the possibility of securing service for all is not likely to improve, for the number of students attending dental schools is now much smaller than it was 10 years ago, so that as the older practitioners retire there will be fewer young men to replace them.

What about dental equipment? During the last score of years dental manufacturers have devoted their attention to the refinement and embellishment of dental equipment, materially adding to the cost until a single installation may cost from $2,000 to $5,000. A recent survey by the New York State Dental Society [1] states that the average cost of equipment is $5,260.

One health officer I called upon in September, 1937, induced a group of dentists in his community to accept a plan whereby each would render a volunteer service, giving ½ day each week in a central office. The dentists submitted for this a list of equipment and instruments which would cost $5,000. He had $600 in reserve to equip the dental office with used furniture and so advised them. Their reply was that they could not work in an office unless the equipment was up to the standard to which they were accustomed. The clinic was not started and the health officer was at a loss to understand the situation because he had equipped another clinic a few months earlier for $450. A young dentist was rendering a satisfactory service there part-time at a moderate salary and at least some of the children were being cared for with mutual satisfaction.

I believe that a durable, comfortable, form-fitting pressed steel chair with a few attachments, such as a head rest, arms, and cuspidor, a pressed steel case for instruments, and a portable electrically driven dental engine could be produced in quantity lots for $100 a set, allowing a generous margin for profit to the manufacturer, and I believe that within a decade 100,000 of such outfits could be placed in cubicles in health centers or in school buildings to facilitate rendering the service the children require. The nurse and physician could find good use for this equipment, too.

All over the country health departments and schools are confronted with the problem of providing some type of dental care for underprivileged children. This, at present, is not accepted as a responsibility by governmental units, because it is looked upon as a phase of medical care; yet in thousands of communities all over the land dental service is being rendered through these channels where the official group is aided financially and socially by such volunteer organizations as Parent-Teachers Associations, Service Clubs, etc. One of the difficulties confronting these groups is the high cost of dental equipment. If the dental manufacturers are not interested in this problem, undoubtedly others will be in the near future.

The last phase of this question on the possibilities and means of improving the dental conditions of children in this country, and which I shall present from the educator's point of view, is the

problem of service. You all know the need for it and realize the inadequacy of what is offered at present, especially in so far as the underprivileged child is concerned.

When in Edinburgh 12 years ago I visited the Queen's Nurses Home, a headquarters office from which a group of noble women are sent to care for the needy in all sections of that city. There, I learned that these nurses were trained during a 2 year course of study to attend the expectant mother during confinement, as well as to give prenatal and postnatal care. By such a procedure the practice of midwifery was gradually being undertaken by qualified, well trained nurses who cared for the poor.

In Maryland in 1937, I learned from Dr. J. Mason Knox that a similar plan had been in effect there for several years, under the jurisdiction of the Division of Maternal and Child Hygiene of the State Department of Health. If the physicians in the locality where a pregnant woman resided declared to the Health Department that they would not confine the patient, then the patient had the choice of a midwife, who must be paid by her, or a public health nurse, whose salary was paid by the state. If the midwife was called, the nurse made it her business to be present to see that the midwife complied with the state regulations governing the procedure at delivery. I believe that you will all agree with me that such an operation is far more serious for the patient than cleaning teeth, filling small cavities, and extracting temporary teeth.

Does it not seem possible to you that we should be able to train persons to do these simple operations for children in 2 years time? One phase of this service is now being rendered by dental hygienists with only 1 year of training in some states and the results have been good.

If such operators were given 2 years' dental training based on 2 years of pre-dental study, licensed to perform a limited service, and were placed under the supervision of licensed dentists who would counsel and direct them as physicians now counsel public health nurses, would it not be a desirable way of attacking this stupendous problem of dental care for deserving children? Provision could be made in our educational institutions, if they are willing to accept the responsibility, to continue the education of such workers, should they desire it, to the point where they might be awarded dental degrees.

The dental profession probably will not accept this program. Many schools will not endorse it. But in my judgment it is a very logical and economic way of solving the problem of dental care for the underprivileged children in our land. Thousands of young men and women could find employment under such a plan, rendering a needed service to worthy children, earning a compensation equal to that paid to others of like qualifications and skill. And, in due time, the children for whom they care will enter the self-sustaining group in a much healthier state than is the case at present. They will be more appreciative of and presumably better able to pay for their needs, including medical and dental care in later life.

The problem with which we are really concerned is the prevention of dental disease and dento-facial deformities. Health education, adequate nutrition, personal hygiene, eradication of infection, correction of endocrine dysfunction, correction of inherited defects—all contribute to the desired end. Of these I believe that nutrition, personal hygiene, and health education are the most important, for no program in preventive dentistry thus far inaugurated has been successful without these. We cannot, however, rely on any one or all of these to the exclusion of indi-

vidual dental care. This must be recognized as perhaps the major factor for some time to come. Dental attention must be given to the mother during the prenatal period and during the infancy of the child, and to the child itself from 2 to 21 years if we expect to attain our goal.

Why, in the United States where dentistry is universally conceded to be the best in the world, is there no lessening of the prevalence of dental decay, especially among children?

REFERENCE

1. Excerpts from Economic Committee's Report. *J.A.D.A.*, 25:1705 (Oct.), 1938.

Medical Students

". . . They naturally have faith in their instructors, turning to them for truth, and taking what they may choose to give them; babes in knowledge, not yet able to tell the breast from the bottle, pumping away for the milk of truth at all that offers, were it nothing better than a Professor's shrivelled forefinger."—Oliver Wendell Holmes, *Medical Essays,* 1855.

How To Improve Dental Conditions in the United States*

C. E. TURNER, Dr.P.H., Sc.D., F.A.P.H.A.

Department of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

THIS discussion was organized to consider specific suggestions for improving the dental health of the nation. The writer has three steps to propose.

The first proposal is an appreciable expansion of the present program of public dental health education through the agencies of the dental and public health professions, acting under both governmental and private auspices. There is probably no disagreement as to the desirability of this step. The rank and file of the American people do not yet understand that—with some latitude for individual differences—parents can insure good teeth to their children through the three-point program of adequate nutrition, suitable oral hygiene, and regular dental care.

The organization and methodology of such a program, using visual material. the spoken word, and the written word, is a subject inappropriate for discussion at this meeting. The proposal is for a national dental health education committee, representing all of the interested organized groups. Such a committee would secure agreement upon the fundamental coördination of participating agencies and the expansion of a program to the point where increased national attention would be secured.

Second, schools can further improve their teaching of both oral hygiene and nutrition—particularly the latter. A tremendous improvement is possible in securing regular dental attention for pupils.

In Malden, Mass., we have raised the percentage of elementary school children having all necessary dental work completed each year from 30 per cent in 1927, to 71 per cent in 1937, without any increase in the amount of free dental service. This effective health education is developed in coöperation with the local dental profession. The private dentist or clinic dentist signs a certificate for each pupil when all necessary dental work has been completed. Each teacher and her pupils try to get as many members of the class as possible to secure all necessary dental attention before the end of the school year.

This proposal uses health education with home attention and dental coöperation instead of unlimited free dental service. It operates upon the philosophy that regular dental care is desirable and that children should be educated to secure such service upon their own

* Read at a Joint Session of the Child Hygiene and Public Health Education Sections and the Oral Health Group of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 28, 1938.

initiative and at their own expense unless prevented by poverty.

The third proposal is the development and use of standards for measuring the dental health of school children in order that a school or a town can observe its own progress from year to year and compare its dental health status with that of other communities. Possible standards for comparable purposes include:

1. The number of children having all necessary dental work completed during the school year
2. The number of cavities filled per 100 children in the completion of this work (This information can be secured from the dentist if space is provided for it on the dental certificate)
3. The number of lost six-year molars at each age level.
4. The number of perfect six-year molars at each age legel
5. The percentage of children at each age having four perfect first molars

You will recall that the American Child Health Association found that the six-year molar serves as a very good index of the dental health of the child population. In a recent study of 600 children in our 6th and 7th grades, we found that 98 per cent of the lost permanent teeth were six-year molars.

Dr. Wisan has proposed a lost permanent tooth index which shows the number of permanent teeth lost or needing extraction per 100 children and the percentage of children who have lost one or more permanent teeth. Our experience in having two dentists examine the same group of 184 7th grade children shows a very wide divergence in judgment as to the number of teeth needing extraction (59 per cent agreement for all permanent teeth and 68 per cent agreement for six-year molars). It shows a much higher degree of consistency in reports upon the number of lost six-year molars (89 per cent agreement).

One might at first think that the number of cavities and the number of fillings in the six-year molars might provide a good index of dental health and that the ratio between these two figures would reflect the adequacy of the dental service secured by the pupils. The wide disagreement between dentists examining the same children in these respects indicates, however, that these measurements probably cannot be used.

This is not the place to develop a detailed discussion of the possibilities and difficulties encountered in securing a satisfactory index of dental health. It is certain that an objective and accepted index would have tremendous value in motivating the dental health education program in the public schools. It is also probable that a satisfactory index can be found. Rapid progress could be made if such a group as the National Dental Health Education Committee proposed above, or a committee appointed by some suitable professional association or official agency, would undertake to bring together existing information, to carry out such additional studies as may be necessary, and thus to evolve and present an objective standard.

In summary, the writer has proposed: (1) extension of our present public health education program in dental hygiene, (2) extension of the school health education program in dental hygiene with emphasis upon dental attention and coöperation with private dentists, and (3) the development of nationally accepted and objective standards of dental health.

Selection and Training of Dental Health Personnel*

FRANK C. CADY, D.D.S., C.P.H., F.A.P.H.A.

Dental Consultant to the State Health Authorities, U. S. Public Health Service, Washington, D. C.

IN order to provide a background for this discussion of dental health personnel, it will be necessary to review briefly the history of the organization of public dental health services.[1] Twenty-four years ago Dr. Alfred Fones trained some women to clean teeth and later placed ten of them in the Bridgeport, Conn., schools to clean and inspect the teeth of the children and provide a measure of dental health education. Twenty years ago, the State Health Department of North Carolina employed a few dentists to examine and treat the teeth of school children. This was the initiation of dental health service in city and state departments and came fifty years after the formation of the first state health department. From this you will note that with the possible exception of industrial hygiene, dental hygiene is the youngest specialty of public health work.

According to *Public Health Bulletin No. 227,* 14 state departments of health and 2 state departments of education, in 1933, employed personnel to conduct dental programs. This personnel consisted of 60 dentists, 14 hygienists, and 2 teachers. A majority of the dentists were part-time and all but 8 were occupied with clinical work. All but one of the hygienists were employed full-time and most of their time was spent in cleaning the teeth of school children.

In commenting on the organization of these dental services, *Bulletin No. 227* states that methods of operation varied widely in all 14 units. In most of these departments, the dental activities were carried on as a part of the Division of Maternal and Child Health; a few were separate bureaus directly under the health officer.

The funds made available by the passage of the Social Security Act stimulated tremendously the development of dental health services, particularly in state health departments. By the end of 1937, 33 states had organized dental health units in these departments. Twelve were separate bureaus directly under the state health officer, the remainder were subdivisions of other bureaus—chiefly, the bureau or division of maternal and child health.

In these 33 states, there were 40 dentists devoting their time to administration and organization—an increase of 32 or four times the number in 4 years. There were 94 dentists employed for field work, over half of whom were full-time. There were also 34 full-time hygienists, 6 teachers, and 7 nurses.

* Read at a Joint Session of the Child Hygiene and Public Health Education Sections and the Oral Health Group of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 28, 1938.

Recent surveys in 93 cities of over 100,000 population show a total of 397 full-time and part-time dentists employed by either the health department or public schools; 15 of these devote their time to administration, organization, and education; the remaining 382 are clinicians. Employed also in the health or educational departments of these cities are 172 dental hygienists and 15 nurses—all employed full-time. All together, there were 768 people employed either full-time or part-time in 33 states and 93 cities to promote dental health. This, of course, does not account for the large number of dental personnel employed by counties and cities with less than 100,000 population and by private agencies. Indications are this number will exceed the total in the states and cities surveyed.

While funds provided by the Social Security Act stimulated a rapid increase in dental health personnel, yet the organizations directly affected took little concerted action regarding the type or qualifications of dental personnel until this year.

Any discussion of the qualifications of different types of dental personnel is directly related to broad objectives of the dental health program. There is general agreement that these objectives consist of—(1) the control of dental defects in their incipiency, (2) an educational program to motivate the younger age group to have defects corrected early and periodically, (3) education for the promotion of better nutrition and hygienic habits, (4) provision for the correction of dental defects of those unable to afford it.

A study of the basic professional training of dentists and dental hygienists will show that they generally are equipped to promote only the clinical aspects of the program. A teacher is trained chiefly in the fundamentals of general education, with only a minimum of training in health education. Public health nursing courses are deficient in training in educational methods and dental hygiene. It is readily understood, therefore, that none of the personnel enumerated is qualified to administer and promote a well rounded dental health program, without additional graduate training and experience.

TABLE I

Dental Personnel in State and City Health and Education Departments in 33 States and 93 Cities with Over 100,000 Population

Unit	*Dentists Administrative and Educational (full-time)*	*Dentists Administrative and Educational (part-time)*	*Dentists Clinical (full-time)*	*Dentists Clinical (part-time)*	*Hygienists (full-time)*	*Teachers (full-time)*	*Nurses (full-time)*	*Total*
33 States	40	3	55	39	34	6	7	184
93 Cities	5	10	144	238	172	..	15	584
Total	45	13	199	277	206	6	22	768

The purpose of presenting these data is to show you the rapidity with which public dental health services have been developed in the last few years and to impress you with the importance of the organization and training problems involved.

An analysis of available data [2, 3, 4] shows that dentists, dental hygienists, teachers, and nurses have been selected for dental administrative and educational purposes, indicating a difference of opinion among public health officials as to the type of personnel best fitted to direct and promote the dental health program.

In addition to a distinct lack of

trained personnel in this field the solution of the problem of selection and retention of competent dental personnel is beset with the same vicissitudes as is the selection and retention of other health personnel. Pressure of political consideration and the demands of the dental associations in particular, have forced some health officers to appoint local personnel when better trained persons were available in other cities and states. Few states have civil service requirements, which is the best method of selection and retention so far devised.

It is recognized that the promotion of the dental health program may require the concerted efforts of the several different types of personnel mentioned. It would seem, however, that the logical person to administer the program in a health department is a dentist with general training in basic public health administration and special training and experience in health education and children's dentistry.

As previously stated, the present-day program is based largely upon the control of dental defects as early in life as possible and as often as necessary. This is to a large degree a professional dental service problem requiring orientation and training of practising dentists and the organization and supervision of adequate clinical facilities for those who cannot afford private service.

The problem of selling and educating the dental profession to provide competent dental treatment for children is one of the most difficult confronting the health department or school. To accomplish this special literature has been prepared, undergraduate schools of dentistry are being stimulated to improve courses in pedodontia, clinical courses and lectures are being promoted at dental meetings, and "refresher" courses for rural dentists are being conducted by health departments.

The rank and file of the dental profession is convinced that a dental program, dependent as it is on increased and improved clinical service for children, should be directed by a dentist.[5] In 1937 the House of Delegates of the American Dental Association passed a resolution requesting that directors of dental bureaus or divisions conducting state programs be licensed dentists. A number of state dental societies have passed similar resolutions.

It is obvious that for the time being, at least, the service side of the dental health program is the predominant one and that a great amount of assistance must come from the dental profession if it is to be successful. This would indicate that a dentist with graduate training in other necessary aspects of the general public health program is the logical person to administer and promote dental health in a health department.

Numerically, at least, the dental hygienist is the next in importance in the dental health field. Of the full-time personnel employed in this work the hygienists exceed in number all other combined. Primarily, the idea of the hygienist was conceived to provide the practising dentist with assistance comparable to that provided by the nurse for the physician. Her training was, and is largely today, pointed toward the cleaning of teeth, care and sterilization of instruments, and assisting the dentist with his operations. Almost from the beginning, however, schools and health departments, state and local, have employed hygienists to assist in the promotion of the dental health program.

There is considerable difference of opinion on the value of the dental hygienist in this field. Some contend there is no place for her in public health work, that the field is already overloaded with specialists, and that other than making individual dental examinations, there is little of value she can contribute that a school teacher, public

health nurse, or public health educator, cannot perform as well with some additional training. However that may be, it is quite obvious the dental hygienist must be trained to provide a service other than cleaning teeth and making dental inspections if she is to survive in public health work. So far, only one school offers a course for dental hygienists that will fit them for a public health career. There are only a few teachers devoting their entire time to dental health education. The few who have had graduate training in biology, physiology, general or dental hygiene, and other kindred subjects, are very helpful in the promotion of dental health education in the schools. Their schooling in the basic educational subjects fits them better than any other type of health personnel to organize and build dental health educational material and programs for school use. The teacher's entree in the schools is comparable to that of the dentist in the dental organizations. When it is understood that the success of the important school dental program is dependent upon the active coöperation and participation of dentists and school teachers, the importance of these individuals is readily understood.

The public health nurse is also a very vital factor in the promotion of a successful dental health service, especially among the important preschool group. The public health nurse is an important link between the home and the school and an important factor in the health program of the adult. Hers is a *personal* contact of recognized value in health education; a guiding hand from pregnancy to maturity. We must depend upon the public health nurse if we ever succeed in sending to school for the first time children free from dental defects. As in other public health fields, the dental health program is handicapped by the scarcity of trained public health nurses.

With some special training, the public health nurse can occupy an important place in the dental health program as a consultant to nurses in schools and in the field, in promoting school and preschool dental service. However, since the trend in public health nursing is toward general and away from specialized nursing, they can and should add dental hygiene to their training program. It is unfortunate that graduate courses in public health nursing have so little in them relating to dental hygiene.

I have enumerated the types of personnel at present employed to promote the dental program in health departments and described briefly the services they perform. I have tried to make it clear that few of them have had the specialized training necessary to fit them to perform these duties with a maximum of efficiency. It is true that by virtue of superior intelligence, hard work, study, and experience, a few have developed into efficient dental health workers. These, however, do not compensate for the large number recently employed who are handicapped in the performance of their duties by lack of adequate training.

The Public Health Service has urged in every instance that newly appointed, untrained dental personnel be sent for training in the fundamental subjects closely allied to their work. For some unknown reason, few health officials have taken advantage of the opportunity provided by the Social Security Act as far as training of dental personnel is concerned. Since the Act became effective, only 4 dentists have completed 8 month courses, 18 dentists were given short courses (16 of these in one state). A few dental hygienists and teachers have taken short summer courses in education to assist in preparing them for this work.

Arbitrarily we might say that any subject matter of a basic public health nature related to the special field of

dental health is essential to the preparation of dental health workers. At the April, 1938, conference of the State and Territorial Health Officers with the Surgeon General of the Public Health Service a schedule of standard qualifications was set up for public health dentists. The following is a summary of the minimum requirements adopted:

I. Basic educational requirements shall be:
   A. The degree of Doctor of Dental Surgery from a reputable dental school
   B. Not less than 3 years of clinical experience in the general practice of dentistry

II. Special qualifications:
   A. For dental officers of health of jurisdictions of less than 150,000, or those in subordinate positions in larger jurisdictions
      1. Candidates for appointment shall be not more than 35 years of age. Preference shall be given to candidates in the following order—
         a. Those who have had training and experience in children's dentistry
         b. Those who have had one or more years experience in the general practice of dentistry
      2. Personnel selected shall already have had or shall agree to take before assuming duty not less than the first semester course in a recognized school of public health
   B. For dental health officers of jurisdictions having populations of more than 150,000, for staff positions with state health departments, and for positions having the responsibility of supervisory and consultative service—the following standard of qualifications shall apply:
      1. Not less than 1 year in residence at a recognized university school of public health and the satisfactory completion of a course of study in the following fundamental subjects in preventive medicine and dentistry: Biostatistics, Epidemiology, Health Administration, Sanitation, Communicable Diseases, Nutrition, Health Education, Dental Health Administration, Oral Manifestations of Communicable Diseases, and Children's Dentistry
      2. Six weeks of field experience under proper supervision

III. Exceptions to the foregoing standards for dental officers may be made only when candidates for positions have, through experience and practical training, proved ability to perform successfully the duties of the position for which application is made.

All schools of public health accept dentists as students for both the short and full year courses. Harvard, Columbia, and Michigan, offer a full school year course in public health dentistry in addition to the required courses in fundamental public health subjects. These schools offer courses to dentists in Pedodontia, Oral Pathology and Oral Communicable Diseases, Health Education, and field work in Dental Public Health Practice. To the best of my knowledge, the University of California is the only school that offers a special course to dental hygienists intended to prepare them for public health work.

If teachers, nurses, and dental hygienists, are to be used in subordinate positions in the field, consideration should be given to their basic qualifications. The teacher does better work with the school health educational program; the public health nurse with the maternal, infant and preschool group; and the dental hygienist for dental inspections.

The following qualification standards are suggested to equip the individuals in these categories for field work dental health service:

1. Dental Hygienist—She should have an A.B. or B.S. in Education and have had a minimum of 1 academic year in a *special* oral hygiene course. (Special oral hygiene course, means a course in which a majority of the time now devoted to operative procedures is given over to a study of basic medical and dental subjects and to general hygiene.)

2. Public Health Nurse—A Registered Nurse with a certificate in public health nursing and a minimum of 1 academic year graduate training in health education or in a special oral hygiene course.

3. Teachers—An A.B. or B.S. in Education

and a minimum of one academic year graduate training in health education or special oral hygiene course.

It is hoped that the graduate training schools for nurses and teachers and public health educators will provide courses in dental hygiene. In certain localities, a few dental and public health schools offer graduate and postgraduate courses in subject matter pertinent to dental public health that may be taken by nurses and educators as optional subjects. Whether or not a teacher, public health nurse, or educator, expects to specialize in the dental health field, it is hoped these key people will be offered courses in dental hygiene and allied subjects to prepare them better to assist in the program to reduce the high prevalence of dental defects.

REFERENCES

1. Salzmann, J. A. *Principles and Practice of Public Health Dentistry*. 1937, pp. 84–85. Stratford Co., Boston.

2. Cady, Dean, Messner. *Pub. Health Bull. No. 227*, 1936, p. 137. Government Printing Office.

3. Cleveland Child Health Association. *Survey of Mouth Health Programs* (3 Sections).

4. Report of the Economics Committee, *American Dental Association, on Dental Programs*, State Health Department, American Dental Association, 1938.

5. Report of Public Health Committee, American Dental Association, *Trans., 79th Ann. Session*, 1937, p. 299.

Immunization Against Tetanus with Alum-Precipitated Tetanus Toxoid

D. H. BERGEY, M.D., D.P.H., F.A.P.H.A.,* CLAUDE P. BROWN, M.D., AND S. ETRIS

Research Laboratories, The National Drug Co., Philadelphia, Pa.

IN the earlier papers by Bergey and Etris in 1933 [1, 2] on the immunizing value of tetanus toxoid it was shown that the plain toxoid or anatoxin of Ramon [3] was much too irritating for human use. Therefore they refined the plain toxoid by precipitating it with aluminum potassium sulphate and washing, a method similar to that of Wells, Graham, and Havens [4] for diphtheria toxoid. They found that the resulting alum-precipitated toxoid stimulated the formation of tetanus antitoxin when injected into guinea pigs. The alum-precipitated toxoid used throughout these experiments was prepared from a toxin which contained 10,000 m.l.d. per cc. before detoxification.

Preliminary work was done by injecting guinea pigs at various intervals with 1 cc. doses of alum-precipitated toxoid. It was found that the serum of such guinea pigs receiving two injections given 90 days apart contained as much as 20 units of tetanus antitoxin per cc. Comparative tests made at the same time demonstrated the superior antigenic value of the alum-precipitated toxoid over the plain toxoid. The results of these experiments led to the following studies made on two groups of humans, youths and adults.

Thirty persons, between 18 and 20 years of age, volunteered for the first studies. Bleedings were taken before treatment and the serum tested for the presence of antitoxin †; however, none was demonstrated except traces possible within the limits of experimental error. An injection of 1 cc. of alum-precipitated tetanus toxoid was given and bleedings were taken 25 and 90 days later. The results showed that tetanus antitoxin is produced slowly after the first injection, reaching the maximum amount, 0.001 to 0.04 unit, in the 90 day period. The second injection was given 90 days after the first injection and tests after 30 days showed there was an increase of the antitoxin,[5] from 0.1 to 9.0 units of antitoxin per cc. of serum. The first injection (primary stimulus), as shown in animals, seems to prepare the antibody-forming cells, so that subsequent injections are followed by a marked increase in the quantity of antitoxin in the blood.

In August, 1935, an older group of 44 individuals between 30 and 50 years of age was selected for study. The preliminary bleedings showed an absence of

* Died September 5, 1937 (see *A.J.P.H.*, Dec., 1937, p. 1205).

† We wish to express our appreciation and thanks to Russell Knerr and George Hottle of the Swiftwater Laboratories for their assistance, which involved a large amount of work, in testing the sera for antitoxin values. Their method of testing for small amounts of antitoxin was published in *J. Infect. Dis.*, 55:360–362, 1934. We are also greatly indebted to Dr. W. B. Rawlings for the toxin used in these studies.

antitoxin. Each member of the group was given 1 cc. of alum-precipitated toxoid and no local or systemic reactions occurred. A bleeding was taken 90 days later and the antitoxic value of the serum determined. The antitoxin ranged from 0.0005 unit to 0.01 unit per cc. of serum. Approximately 50 per cent of the individuals showed 0.0005–0.0008 unit of antitoxin. Three showed 0.01 and 23 showed 0.001–0.005 unit of antitoxin in 1 cc. of serum.

The amount of antitoxin contained in the serum after the first injection of toxoid is, however, no indication of the possible stimulation given by an additional injection of toxoid. A second injection of 1 cc. of alum-precipitated tetanus toxoid was given 90 days after the first injection, and a bleeding taken 105 days later, or an interval of 3½ months after the second injection. The antitoxin content of the serum had increased 100 to 500 times its previous value and, with the exception of three sera which tested 0.03 unit, all contained 0.01–0.4 unit of antitoxin per cc. of serum.

A comparison of the results obtained by immunization of this older group from bleedings taken 3½ months after the second injection, and those from bleedings of the younger group one year after the second injection, showed that the older group contained less antitoxin. In the lower age group not one serum showed less than 0.001 unit of antitoxin 90 days after the first injection, while about 50 per cent of the older group showed about 0.0005 unit.

Nineteen months after the second injection a second bleeding of the older group was taken and the serum tested as before. The antitoxin had decreased to approximately one-fifth of the former value and the serum of 14 of the 44 individuals now contained less than 0.01 unit of antitoxin. This amount is thought to be too low to prevent the development of tetanus and such persons should have their immunity increased by giving an additional dose of toxoid.

There is difference of opinion as to the amount of antitoxin necessary to protect man from the development of clinical tetanus.

Sneath [6] states "Of 29 persons given three doses of tetanus toxoid, significant amounts of antitoxin developed in 28, a titer of at least 0.1 unit per cubic centimeter of serum being reached in the majority, or 20. From 5 to 7 months after the last dose there was in general a reduction in the antitoxin level, but 27 still showed demonstrable antitoxin, the majority, 25, showing 0.01 unit or more."

Sneath [7] also states: "In order to obtain an estimate of the relative protection afforded man by such levels of antitoxin, the blood antitoxin of 9 individuals, following the administration of the usual prophylactic dose of antitoxin (1,500 American units) was determined. Approximately 72 hours after intramuscular administration, the level was 0.1 or $> 0.1 < 0.25$."

Sacquepée [8] states that from 0.1–0.2 unit of antitoxin per cc. of serum would probably be sufficient to give a considerable degree of immunity when one takes into consideration the sensitizing effect upon the cells concerned in the production of antitoxin.

From our own observations on the immunizing effect of toxoid we arbitrarily chose 0.01 unit of antitoxin per cc. of serum as the minimum protective level. In persons previously injected with multiple doses of toxoid, this amount of antitoxin can, in case of injury, be increased rapidly by giving an additional injection of tetanus toxoid.

Laboratory experiments have shown that the circulating antitoxin, as estimated by the mouse-protection test, does not represent the total protection. Immunized guinea pigs, showing 0.2

unit of antitoxin per cc. of serum, computed in terms of total humoral protection, will neutralize 6,000 m.l.d. of tetanus toxin. However, these pigs will tolerate an injection of 15,000 m.l.d. of tetanus toxin without showing any evidence of tetanus intoxication.

If we accept the difference between humoral protection and total protection as non-circulating or so-called cellular immunity, then the non-circulating immunity, at least in guinea pigs, is 1½ times greater than the humoral protection which can be estimated by testing the blood after immunization.

Experiments by Rawlings[9] have shown that guinea pigs immunized with 1 cc. of refined tetanus toxoid will tolerate injections of tetanus spores. Six weeks after the immunizing dose each pig was given a large dose of tetanus spores. The spore emulsion was prepared from an old agar culture which had been heated at 85° C. for 20 minutes to destroy bacillary forms and any existing toxin. Two grains of quinine sulphate was added to each dose as a necrotizing agent. The immunized pigs were all protected while the control pigs died within 5 to 9 days.

CONCLUSION

A comparison of the amounts of tetanus antitoxin found in persons of different age groups with refined tetanus toxoid has shown that 90 days after the first injection the blood serum of older persons does not contain as much antitoxin as persons in the lower age group.

The second injection greatly stimulated the formation of antitoxin in both age groups but the average antitoxin titer was somewhat higher in the lower age group, and there also appears to be a greater loss of antitoxin from the blood stream in the older age group.

This investigation suggests that in immunizing older persons with tetanus toxoid it probably is necessary to give more than two doses of toxoid to develop a basic immunity.

Studies on the immunization of persons against tetanus are being continued with a refined toxoid prepared from a toxin having an original titer of 100,000 m.l.d. per cc.

REFERENCES

1. Bergey, D. H., and Etris, S. *Proc. Soc. Exper. Biol. & Med.*, 30:1037–1038, 1933.
2. Bergey, D. H., and Etris, S. *J. Infect. Dis.*, 53:331–336, 1933.
3. Ramon, G. *Ann. Inst. Pasteur*, 38:1, 1924; *Comp. rend. Acad. d. Sc.*, 178:1436, 1924.
4. Wells, Dewey M., Graham, Arthur H., and Havens, Leon C. *A.J.P.H.*, 22:648 (June), 1932.
5. Bergey, D. H., and Etris, S. *J. Immunol.*, 31:363–371, 1936.
6. Sneath, P. A. T. *J.A.M.A.*, 102:1228–1229 (Apr. 21), 1934.
7. Sneath, P. A. T. *Canad. Pub. Health J.*, 25:195, 1934.
8. Sacquepée, E. *Paris med.*, 23:491 (June 3), 1933.
9. Rawlings, W. B., V.M.D. (to be published).

Essential Problems in Pertussis*

HAVEN EMERSON, M.D., F.A.P.H.A.

Executive Officer, DeLamar Institute of Public Health, College of Physicians and Surgeons, Columbia University, New York, N. Y.

IF epidemiology is the servant of the health officer as well as a form of intellectual discipline and a field of science devoted to unravelling some of the phenomena of disease, we can properly review the present status of our knowledge or ignorance about pertussis to make sure that we are using our opportunities effectively to add to our facts and for the reduction of its incidence and death.

The fall in the reported death rate per 100,000 of total population, and in the case fatality per cent for pertussis in the past two decades in representative cities of the United States has been considerable:

DEATH AND CASE FATALITY RATES FROM PERTUSSIS IN 32 CITIES OF THE UNITED STATES *

	Average Death Rate per 100,000	*Case Fatality Per cent*
1924–1928	5.22	3.13
1929–1933	2.00	1.09

* Population at all ages in these cities was 21,904,758 in 1924, and 26,219,638 in 1933. The deaths numbered 5,820 in the first quinquennium and 2,469 in the second. The cases reported in the first quinquennium numbered 185,699 and in the second 224,606.

These apparent improvements in the situation seem to me to have been related more closely and consistently to a falling birth rate, and the resultant effects on age grouping of the population, and upon the size of families, and upon the age at which the children are exposed to the disease, than to any specific factor in the private or public practice of medicine such as active or passive immunization of susceptibles, better treatment of the sick, or more effective isolation and other administrative measures directed toward the control of pertussis.

It would seem reasonable to expect that the case fatality of pertussis might have been favorably affected by the better home hygiene, antirachitic and other nutritional advances in the dietaries of children, more general and skilled home nursing of patients during isolation, and other factors which we see applied for the benefit of children under 5 years of age, but there are, I believe, no studies to confirm these general impressions.

ADMINISTRATIVE PRACTICES

If one were to note the features of current common administrative health practices which in some way hinder us from a more exact analysis of the downward trend of pertussis, one would note first that few if any health departments tabulate, if indeed they require the initial report card to include a record of, the age of the patient. Thus in attempting to study the trends in incidence and fatality rates which calls at least for age specific tabulations

* Read at a Joint Session of the Laboratory and Epidemiology Sections of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 25, 1938.

by years up to 5, and by 5 year groups up to 15 years of age, one finds practically no published data except perhaps from Providence, R. I., and in fact no records on file in health departments of cities from which case and death rates by necessary age groups can be calculated.

Second, one finds a very considerable incompleteness of reporting, the extent of which varies widely according to the interest and adequacy of the local health and medical services of the community, from approximate completeness to about 5 per cent of estimated cases.

Third, one finds that routine departmental procedure in establishing the diagnosis and recording the presumed susceptibility, exposure, and subsequent history of infection in households where other children than the reported patient are living, is neither uniform nor adequate to permit study of the relative merits of isolation periods of different lengths, of inoculations intended to prevent, or of therapy designed to modify the course of the disease.

It is the lack, it seems to me, of reasonably adequate, uniform, and effective recording and follow-up practices by health departments which has made it necessary to set up elaborate and very costly studies to learn whether what we are actually doing has any appreciable influence on incidence and deaths, and whether any immunizing procedures proposed by public authority or introduced in private practice by commercial promotion have any promise of good results.

The Sub-Committee on Whooping Cough of the Committee on Evaluation of Administrative Practices at its meeting last October made the following statement, and members of that subcommittee will give us some results of their studies since then.

> The special study committee on whooping cough feels that there is a need for further carefully collected data regarding the epidemiology of whooping cough, particularly the problems of early diagnosis and the recognition of mild and abortive cases, and would welcome information concerning such studies which are now under way or which are contemplated in the future.
>
> The work planned by the special study committee on whooping cough for the ensuing year may be tabulated briefly as follows:
>
> 1. An analysis of Dr. Kendrick's immunization studies
> 2. A critical survey of the literature on the prophylactic use of whooping cough vaccine
> 3. An attempted evaluation of the pertussis immunization studies now in progress in the United States and Canada
> 4. A close coöperation with the committee on laboratory procedures in (a) a study of whooping cough antigens, and (b) an attempt to find methods which might, in part, be substituted for the present time consuming methods of testing the efficacy of pertussis vaccine as a prophylactic agent

This is not the occasion nor this audience the one for which warning of the severity of the disease, its direct and indirect damage to health, growth, resistance, particularly of young children, would be appropriate. We are aware of the leading rôle of pertussis among the acute communicable diseases of early childhood. What we know that will help us to control it can be briefly told, and what we must still search for and prove of greater worth is an open field for study.

The etiologic agent we know, also its source in the sick person, and how it is transmitted. The period of incubation is known with more certainty than the period of communicability, and yet the latter is fairly uniform and calculable. We assume, though without precise proof, that all persons are susceptible until they have had the disease, unless there be a spontaneous reduction in susceptibility with age after 15 years, and that active immunity of lifelong duration usually follows recovery from a clinically recognized attack. Several administrative procedures are in the stage of acute discussion, one, the use of plate cultures to establish or confirm

diagnosis, and to determine the end of the period of communicability; another, the use of vaccines for the prevention and treatment of pertussis; a third, the use of convalescent serum for passive protection of exposed young susceptibles and modification of the severity of an attack. It would be of great value if we had a specific test for immunity or susceptibility.

With regard to the use of the plate culture method, its usefulness and practicability as a public health laboratory procedure to aid diagnosis and to determine the end of the period of communicability, have been extensively tested in Denmark with satisfactory results. It has been used in a few cities in the United States but not as a routine, for any considerable period of time nor with practical results of any particular value. Its usefulness has been reported from San Francisco. The Danish and Harvard Whooping Cough Commissions found it reliable in skilled hands. It has not been recommended as a diagnostic test for routine field work by any representative public health organization in this country. It would seem that clinical criteria and white cell counts suffice for diagnosis without verification by plate culture, and that its routine use is too cumbersome and expensive to be justified as a basis for release of the patient from isolation.

Conflicting if not actually contradictory results of carefully controlled use of pertussis vaccines have been common. There are apparently factors related to preparation of the vaccine, to the size and number of doses, to the age and exposure environment of the children, and possibly to the type of the disease in the community or its prevalence during the period of test, any one of which may prove to be significant in the apparent success or failure of its use. There have been enough suggestive results in the hands of qualified observers to encourage further experimental use under a variety of urban and rural conditions, and with vaccines or other possibly immunizing substances of different origins, and over a considerable period of time and number of susceptible children, to answer the uncertainties and inconsistencies of evidence received to date.

The use of convalescent serum and whole parental or convalescent blood has been limited to a few observers. Neither the extent of the use of these substances intended to create passive and temporary immunity, nor the reports of results, have been sufficient to justify recommendation of large scale or routine use of these agents to protect exposed susceptible children under the age of 5 years.

As to a promising test to determine presence or absence of natural or acquired immunity, it can be said that there is none.

If and when we have such a test of susceptibility for pertussis as we have for diphtheria, and if some of the active immunization procedures now undergoing thorough testing prove to be of substantial value we can look forward to their widespread encouragement and possibly their inclusion among the recommended procedures in local health practice.

In the meantime any health officer with even a modest administrative machinery can without any material addition to his record system cull valuable data as to any trends that may develop in different child age groups in regard to incidence, death, and case fatality rates. Also he can inform himself as to the probable extent of incompleteness in the reporting of pertussis by the practising physicians of his community.

I wish to add to my summary two paragraphs from the report of a symposium on pertussis held in San Francisco under the auspices of the Ameri-

can Academy of Pediatrics which I quote from the article by Professor Harold K. Faber.[1]

> There are, I believe, certain features of these institutional reports which offer clues to the solution of the problem under discussion today. First, it is obvious that the immunity supplied by prophylactic injection of *Hemophilus pertussis* vaccine is not, and cannot be expected to be, absolute. Second, contrary to earlier belief, the immunity derived from a previous attack of the disease itself is also far from absolute. Third, in both cases it tends to break down when exposure is intimate and prolonged. Fourth, under less drastic conditions of exposure both the artificially and the naturally induced immunity appear to afford protection in a large proportion of cases, and in general the protection from both sources appears to be approximately equal. Fifth, there is evidence of partial protection when the immunized individual does acquire the disease, as shown by briefer and milder symptoms.
>
> It is clear, I think, from the evidence that I have reviewed that many problems need further study. We need more field studies. We need a practical clinical test for immunity. Dosage may need revision, perhaps upward. The optimum intervals between injections may be greater than one week. We do not as yet know how long immunity lasts or the rate at which it declines. There may be strains of *Hemophilus pertussis*, such as the one which Bradford has recently noted, in about 5 per cent of cases, which should be included in the vaccine in order to increase the number of protected individuals.

The above appear to me to be at present the essential problems in pertussis, and with this introduction we can listen to the original contributions of the others on this program who are in the best position to answer some at least of the questions uppermost in our minds, such as those of Dr. J. J. Miller, Jr.

REFERENCE

1. Faber, H. K. *J. Pediat.*, 13, 2:279 (Aug.), 1938.

The Exhibit Medium*

HOMER N. CALVER, F.A.P.H.A.

Secretary, American Museum of Health, and Director, Health Exhibits, New York World's Fair, 1939, New York, N. Y.

MAN is constantly trying to break down the barrier which separates him from his fellows by endeavoring to improve his means of communication with them. None of the means so far devised is perfect. The first pictographs were an attempt to supplement the grunts and gestures which must have chiefly served primitive man to convey his simple ideas of food, shelter, mating, and combat with which his life was chiefly concerned. As life became more complex, so the auditory and visual symbols of expression assumed greater exactness, richness, and complexity. As a result the problem for the health educator today is to find a way to break through this welter of words written and spoken, pictures still and moving in black and white and color, fortified for their dissemination by powerful broadcasting stations, national hookups, Kleig lights, million-dollar stars, double features, and block bookings, not to mention high speed presses and mass circulation.

Although these media are also available to us to some extent the exhibit medium offers an effective and under certain circumstances a preferable method, for health education.

THE LANGUAGE OF EXHIBITS

Exhibits may be compared to language. Things exhibited are nouns. Color is an adjective; motion, the verb. Just as the selection and arrangement of our parts of speech determine the sureness with which we transmit an idea, so the selection and arrangement of our exhibit elements will determine the clarity and dramatic emphasis with which we tell our story through that medium. If I say to you the word "boy" this creates an image in your mind. If I say "black boy" the image takes on character. When I say "fat black boy" the image becomes still more specific. If this image is now put into motion with the words "fat black boy running" it becomes more interesting. So one adds adjectives, verbs, adverbs, and other words and phrases to the single concept "boy" to create a specific picture or arouse an emotion. Within certain limits this picture or emotion will be uniform for the whole audience. So, as one achieves lucidity and force of expression in language through adherence to the rules of composition one achieves similar results in exhibits through adherence to the rules of exhibit technic.

Our knowledge of these rules is still rudimentary, nevertheless there are some general principles which it is important to have in mind. First, it must be accepted that the exhibit medium in spite of its many values has certain distinct limitations. The exhibit as we know it today is not usually adapted to telling a comprehensive and detailed story. It can,

* Read before the Public Health Education Section of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 25, 1938.

however, point out and drive home a few salient facts. In any one exhibit these facts should be limited in number and be related, because unity is a principle to be followed in any method of idea communication. The excellence of an exhibit is frequently determined by what is left out rather than by what goes into it. Exhibits also can well make use of the teaching principle of proceeding from the known to the unknown. Similarly simple ideas will be grasped more clearly by more people than complex ideas will be. In this connection it is well to remember that an idea which seems simple to the expert may be incomprehensible to the average man. Such an idea for instance as an adjusted death rate though elementary to the vital statistician is not understood by the layman or for that matter by many health workers or physicians. One of the first steps therefore in planning an exhibit is to form a clear concept of the audience to be reached. Many a candidate has lost the farmers vote because he talked in language which only the city bred could understand. It is obviously more difficult to make an exhibit for a group which is diverse as to education, culture, occupation, and age level than it is to make one for a homogeneous group such as a class of farm-bred school children. It should be noted, however, that the exhibit may by its manner of presentation automatically select from a miscellaneous audience the particular group it is desired to impress.

Having the group clearly in mind, the next step is to be sure one is certain of the purpose of the exhibit. Too often exhibits occur merely because some energetic soul has said, "Let's have an exhibit." When an audience is to be assembled as for instance in a convention, county fair, or town meeting, and it is desired to implant in the minds of that audience a few simple ideas, then one should consider the exhibit as a most useful tool. Only under unusual circumstances such as a World's Fair should one depend on assembling an audience for the single purpose of looking at an exhibit, or attempt to use the exhibit as the sole instrument of education, particularly where the message is of necessity complicated or lengthy. Being aware then of the occasion and circumstances of the showing and having in mind the audience to be reached, the next step is to put down on paper for your own guidance and the guidance of those with whom you will collaborate, the purpose of the exhibit. For instance, "The purpose of this exhibit is to convince my Board of Directors, particularly that skeptical and wealthy Mrs. Jones, that we are spending our present budget very economically and that we should have twice as much money next year to meet our responsibility"; or "The purpose of this exhibit is to induce the farm mothers to bring their babies into town for the free clinic on Thursday mornings."

Setting down the purpose in black and white aids immeasurably in selecting the facts for presentation. Taking the last statement as an example, these facts might be:

1. The clinic is held in the basement of the Court House Annex. (There is no need to tell them in the exhibit how to get there or where to park their cars.)
2. The clinic is held every Thursday morning. (No need to say why it has to be held on Thursday mornings or that next spring it may be changed to Wednesday afternoons.)
3. That services are free and confidential.
4. That a regular check-up of a healthy baby may save expensive doctor bills (or some other one argument that has proved to be most generally appealing).

So far the task seems obvious. It is so logical in fact that I would not have dwelt on it except that I have noticed during an intensive experience with several hundred people who were connected with exhibit planning that

the usual tendency is to begin the other way around. Even before the story or purpose of the exhibit is decided on there seems to be an irresistible temptation to proceed at once to elaborate on or adapt this or that device or attention-getting gadget that has been observed somewhere else. This procedure is like writing the prescription before the diagnosis is made. It is comparable to taking a pill for a stomach ache without finding out what causes the stomach ache. One should guard against this patent medicine method of exhibit planning. Not until purpose and story have been determined is it time to design the exhibit. At this point it is desirable to seek help, employing an exhibit designer if possible. For a large exhibit such design service is essential if funds are to be spent most economically.

It is to be remembered that the exhibit is a distinct medium for the communication of ideas. It may draw on other media such as language and pictures, but if one depends on these aids chiefly it is a confession of failure. An exhibit is not merely an opportunity to show motion pictures or lantern slides to an audience which is standing up instead of sitting down. Though it may utilize charts and text it is not a magnified vertical textbook. An exhibit to be effective must have its own interest qualities, of design, color, movement, or a sense of motion. Among these, design is the most important. Design is to exhibits what rhetoric is to language. The problem of design covers the whole subject of the selection and arrangement of exhibit elements. In exhibit planning, design is unimportant as an end in itself. Design must be related to purpose. The selection and arrangement therefore of color, words, lettering, pictures, devices, light, and other elements should be determined by their relationship to the message of the exhibit and their value in achieving its purpose.

USE OF COLOR

Color is an inexpensive method of achieving effect. It can be secured by paint, ink, cloth, paper, or light. Color should be chosen for its psychological effect, not because someone thinks a certain color is pretty. Color can be used to produce contrast, harmony, emphasis, feeling, and a sense of motion. Juxtaposition of colors can produce striking results. There are few communities in which the health educator cannot find an artist or someone else trained in the use of color, who will be willing to advise him on this point. The local library can usually furnish a book or two on the subject. Among others, *The Study of Color* and *The Art of Color* by Michel Jacobs may be helpful.*

USE OF MOTION

Twenty-five years ago or more, our field was pleasantly stirred by Dr. C. St. Clair Drake, who as far as I know was the first person to introduce motion into health exhibits in this country. About the same time Dr. W. W. Peter employed moving health exhibits as well as many other ingenious devices in his mass health education program in China. The effect of this novelty on a hitherto motionless exhibit world was so startling that we still make a fetish of motion. Dr. Drake in fact maintained that motion was essential to attract attention even if it was nothing more than a flag fluttering in the breeze of an electric fan. Mr. Routzahn has since emphasized however that motion *per se* is not a criterion of effectiveness. He states that the motion must be related to the message. This is in accord with the principles of good functional design. Frequently design can impart a sense of motion and sometimes satisfactory results can be ob-

* Also *The Colorist*, by J. Arthur Hatt, and *Color Dimension*, by Faber Birren.

tained by merely suggesting impending motion such as a sledge hammer about to strike an egg.

LIGHT

Every exhibit should be clearly illuminated, and this nearly always means special lighting for the exhibit. In very few locations can one depend on daylight or the ordinary room lighting. Shadows should be avoided unless, of course, they are deliberately included for effect. Material with a shiny surface should not be used as the background of an exhibit since it produces glare and confusing reflections. Emphasis on a particular point in an exhibit can be secured with a spotlight. Silhouette lighting is very effective. In this method an exact silhouette, in reduced scale of the object to be illuminated, is placed in front of the spotlight so that the edges of the light coincide exactly with the edges of the figure or object. Flashing lights should be used with restraint. These as well as moving devices and other embellishments must not be so "clever" that the visitor is intrigued with their cleverness rather than the message of the exhibit itself.

LETTERING AND TEXT

The rules for lettering and text on exhibits are few and definite.

They are:

1. Keep the amount of text to a minimum. If the exhibit can tell its story with no text at all so much the better.
2. Use short words that everybody understands.
3. Use short lines with not more than 6 or 7 words to a line at most.
4. In a running text use upper and lower case letters. Words with all capitals should be used only for short titles or as an element in design.
5. Text should be large enough to be easily read at the distance from which the visitor is expected to view the exhibit.
6. Use plain Caslon or Futura letters for the message you want to convey. Gothic, Old English, script and other unusual type faces can be used as an element in design or to produce a desired atmosphere.

VISITOR PARTICIPATION

Just as motion in exhibits has been emphasized in the past, so now the value of visitor participation in animating exhibits is stressed. I believe there is some psychological justification for emphasizing the value of such participation. Sometimes also it is cheaper to arrange for the visitor to animate the exhibit than to equip it with a motor. Common errors in the use of such devices are, however,

1. It is not clear to the visitor what he is supposed to do.
2. The machine is not designed to withstand a heavy visitor load or to prevent deliberate or unconscious abuse.
3. The visitor's interest is so centered on what he is doing that he fails to see or remember the rest of the exhibit.

As was noted under motion, the animation created by the visitor should implement the story which is being told.

TEN TYPICAL DEVICES

The most effective exhibit is one which is properly designed for its specific setting and purpose. There are, nevertheless, many stock devices some of which may be usefully incorporated under certain circumstances. Although some of these now seem trite from repeated use, they are still effective if skillfully employed. Here is a list of 10 such stock devices.

1. *The question and answer device*—This has been extensively used by the American Medical Association in many different forms. It is most useful where there are no other exhibits insistently demanding attention or when the visitor is not hurried.
2. *Moving lights*—These may take the form of a spot of light travelling a prescribed course, a line of light bulbs flashing, or a band of light growing longer and longer This device is useful to show a route travelled, such as that of a train across the country, or a blood corpuscle through the body, or to carry the visitor's attention from one point of the exhibit to another.

3. *The pendulum,* of which the balance and the swinging pointer are variations—This device can show relationship, comparison or relative values.

4. *Big book with turning pages*—This has been popular with exhibitors but is not always popular with the audiences. Most people would rather read a book sitting down and turn the pages for themselves when they are ready.

5. *Moving signs*—Useful when the location is such that the audience is likely to remain to look at them as in a railroad station. Often, however, moving signs are resorted to simply because the exhibitor is unwilling to reduce text matter and make desirable curtailments in the story.

6. *The Peep Show*—A box or other device into which only one person can look at a time. This is nearly always a sure-fire attraction and may be inexpensive. It is essential that the visitor be given something really interesting to look at and that he be not fooled lest the usefulness of the device be ruined for everyone.

7. *The diorama*—A good old standby since The Century of Progress, getting so common now that it is no longer effective unless very well made, well lighted and represents a scene which is interesting in itself particularly when in competition with other dioramas.

8. *The short motion picture or "quickie"*—Best used when visitor-operated and lasting not more than 30 seconds. Useful to highlight a process or incident. Pictures must have action and good photography.

9. *Enlargement*—A giant typewriter, adding machine, safety pin, flower, or blood corpuscle will attract attention—useful in emphasizing size, number and importance.

10. *Photo montage*—A collection of photographs usually highly enlarged, cut out and fitted together. Pictures must be selected with care, and fitted together with a skill which makes them seem to be assembled without plan. Useful in giving a feeling or general impression as for example, the moving photo montage used to introduce one of the popular news reels.

There are many other stock devices and anyone who is responsible for exhibit planning will find it useful to keep notes of those he sees together with his observations of their value in presenting different ideas.

Finally, it should be emphasized that the setting or surroundings of the exhibit are as important as the exhibit itself. If we have to use a room with windows, this can be overcome by building a false wall extending from 1 or 2 feet above the floor to within 2 to 3 feet of the ceiling, thus giving an unbroken surface and cutting off confusing cross-lights. Rooms that present a discouraging vista can be broken up with screens. The distracting background of a gold filagree decoration or a wallpaper of intricate pattern can be blotted out with cloth or paper hangings. In general, everything possible should be done to avoid visual conflict between the exhibit and its surroundings, and visual conflict between different exhibits.

In conclusion, let me recommend that you try out your exhibit on a test audience before you present it to the public, and do this if possible before it is too late to make changes. Many of us are so engrossed in the subject matter of the exhibit that we fail to realize that signs, symbols, and words may have a different meaning and implication for us from what they have for the audience. Dr. Gebhard, who has had much experience in the field of medical exhibits, gives me the German word "trugschluss," which as near as I can translate it means false impression or misleading conclusion. After all our efforts we must be sure that our exhibit does not convey some other idea than the one we intended. For instance, at the Museum of Natural History in New York there is an exhibit which aims to show the value of inoculation against typhoid fever. The model represents soldiers in the Spanish American War which occurred before soldiers were inoculated. It shows that out of every 100 soldiers 14 were afflicted with typhoid for every one injured by gunfire. The reaction of an intelligent man who saw this exhibit recently was, "What safe wars they used to have."

In summary then I would list these points for the guidance of health educators who are creating exhibits:

1. Have your audience clearly in mind.
2. Set down the purpose of the exhibit.
3. Select a minimum number of salient points to be presented.
4. Make a design with whatever help you can secure.
5. Incorporate such exhibit technics as you may have observed to be effective and which lend themselves to the telling of *your* story.
6. Incorporate motion or visitor participation if circumstances warrant, funds permit, and these clearly pertain to your message.
7. Tell your story in terms your audience cannot misunderstand, but do not talk down to your audience.
8. Test your plan before presenting it.
9. Experiment a little, judging results by visitor reaction rather than by subjective satisfaction.

REFERENCE

Calver, Homer N. Exhibits for the Laity. *Journal of Technical Methods and Bulletin of the International Association of Medical Museums*, 18, 1938.

Epidemiology of Leptospirosis*

K. F. MEYER, M.D., PH.D., F.A.P.H.A., B. STEWART-ANDERSON, AND B. EDDIE

The George Williams Hooper Foundation, University of California, San Francisco, Calif.

DURING the past 2 years the Epidemiological Intelligence Services of the West have repeatedly requested coöperation in the solution of the etiologic factors responsible for outbreaks or sporadic cases of jaundice. Epidemics involving small rural schools have occurred in May and June and affected as many as 42 children at one time. In another, the cases of catarrhal jaundice were seen in familial distribution shortly before or during the rainy season which was followed by floods.

Invariably, the serological examination, inoculations of guinea pigs, and the examination of rodents collected within the epidemic area yielded no evidence which would stigmatize the *Leptospira icterohaemorrhagiae* as the causative factor. In fact, a careful analysis of the clinical cases, the incubation time of from 3 to 4 weeks, and the obvious contagious character lead to the conclusion that these outbreaks were indistinguishable from the well known epidemic catarrhal or infective hepatic jaundice previously described by Blumer [1] and others for this country and well known in Great Britain through the publications by Pickles,[2] Morgan and Brown,[3] Findlay, Dunlop, and Brown,[4] and in Syria by Yenikomshian and Dennis.[5]

Thus far, all experiments to reproduce this disease in a great variety of animals have furnished little tangible evidence concerning the etiologic agent. An ultramicroscopic agent transmissible to man only is suspected. Sporadic, abortive or latent cases may be the sources of the infection. On the other hand, it must be recognized that single cases of febrile jaundice may be typical cases of Weil's disease. Relatively little attention has been paid to these infections in the United States; in 1937, Packchanian [6] places on record about 32 proved cases. More recently, 2 sporadic cases have been diagnosed in Rochester, N. Y.,[7] several in Detroit, and at least 5 have been studied in San Francisco and vicinity. Examinations of serum specimens and sections of organs derived from guinea pigs injected with urine of patients have proved the existence of Weil's disease in the Hawaiian Islands.[8] There is every reason to believe that these figures merely represent a small fraction of the actual cases.

Experience both in England, particularly London, and in Holland has shown that the incidence in proved diagnosis rapidly increases, provided reliable diagnostic methods are available. Thus,

* Read before the Epidemiology Section of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 25, 1938.

previous to 1933, less than 4 cases of Weil's disease were reported in London for an entire year. With facilities to test the sera of suspected cases at the disposal of the physicians, the same number of infections are now seen within a month. Since the first case of Weil's disease was diagnosed in 1924 in the Netherlands with the help of a bacteriological examination, not less than 756 cases had been detected by the end of 1936. In Rotterdam, the rate was 56 cases per 400,000 population. Likewise in France between 1924 and 1932, 263 cases were entered in the official records.

Furthermore, it is now recognized that only two-thirds of the patients infected with the leptospira show an icterus. The symptom of jaundice arouses suspicion to such an extent that an examination for leptospira is usually indicated. The relative ease with which a few of these infections have been recognized in California as soon as proper diagnostic methods were available encourages the belief that human leptospirosis may be masquerading under a diversity of diagnoses.

LABORATORY AIDS

The methods of bacteriological diagnosis are delicate and require considerable experience. It is well to remember that the parasites can be detected only in blood plasma specimens concentrated by centrifugation during the first 4 days of illness. Darkfield examinations are very misleading and have not infrequently tempted the examiners to make erroneous diagnoses. The inoculation of guinea pigs with the patients' blood again proves successful only during the early days of the illness, rarely after the 8th day. The animal test is not dependable since certain leptospira strains have a low pathogenicity even for very young guinea pigs. Perhaps, the use of deer-mice (*Peromyscus*) as suggested by Packchanian or the Richardson squirrels as recommended by Syverton, Stiles, and Berry [9] may improve the diagnostic yield. These procedures may be supplemented by cultures of the blood but they presuppose a close coöperation between the physician and the laboratory. Experience has shown that the serological tests—agglutination and lysis—followed by animal inoculations with urine or spinal fluid are the most dependable tools in epidemiological work.

The serologic technic developed by Schüffner [10] using living and formalinized (pure formalin) antigens prepared from leptospira cultures in Verwoort media has proved highly satisfactory. With this procedure, the diagnosis of Weil's disease is greatly simplified provided several strains of leptospira are used as antigens, and that titers under 1:300 are not accepted as diagnostically decisive. Esseveld,[11] in a careful study on a large series of cases (87), stresses the fact that any titer above 1:300 usually $>$ than 1:10,000 may be safely interpreted as undeniable proof of Weil's disease. In view of the difficulties inherent to these serological tests, it is advisable to centralize the examinations in state or research laboratories with trained personnel.

EPIDEMIOLOGIC OBSERVATIONS IN CALIFORNIA

Since 1927, at least 5 laborers connected with the cleaning and the maintenance of the sewers in San Francisco developed a febrile jaundice resembling Weil's disease. A definite serological diagnosis was made on one case in 1936 and on another in 1937. During the same year, a fatal Weil infection was recognized in a 61 year old Japanese who had worked in his rat infested garden, and an anamnestic diagnosis was made in a veterinarian who serves at the hospital of the Society for the Prevention of Cruelty to Animals and

handles a great many jaundiced dogs. In July, 1938, a filling station operator, aged 27, developed Weil's disease following a fishing trip along the Napa River. He also waded in the mud beds along the wharves and had eaten his lunch in the same area. At the same time, a 28 year old assistant to a veterinarian at Stockton, Calif., with an influenza-like febrile disease was diagnosed as an interesting case of Weil's disease due to *Leptospira canicola*. Investigation of this limited number of human leptospirosis disclosed the existence of two different sources of infection. Nine of the 11 cases had in one way or another been in contact [1] with water or sewage, while two were [2] exposed to dogs.

Since the degree of endemicity of Weil's disease is influenced by the murine infection of the rat population, the hydrogen ion concentration of the surface water, a low salinity and a hardness not exceeding 19 to 21, a number of preliminary surveys have been instituted.

With the assistance of the San Francisco Department of Public Health and the Laboratory for Plague Suppressive Measures of the U. S. Public Health Service, both random and spot sampling of 467 rats (*Mus norvegicus, Mus alexandrinus*, and *Mus rattus*) yielded in darkfield examinations renal leptospira findings in 176, or 35 per cent. In the vicinity of an animal stable, 42 of 44 old Norvegicus rats have been found infected. Single or pooled specimens of the rat kidneys on inoculation into guinea pigs produced the lesions typical for leptospirosis on the first, second, or third passage through these rodents. Twenty-three strains were isolated in culture and by serological tests identified as *Leptospira icterohaemorrhagiae*, generally known as the classical rat strain. Murine leptospirosis had been previously recognized by J. R. Ridlow in San Francisco. Renal leptospirosis infections have been definitely established in Washington (10 per cent), Nashville (10 per cent), New York (17.2 to 21.9 per cent), Albany (40 per cent), Baltimore (7 per cent), Chicago (3 to 52 per cent), Rochester (38 per cent) and Detroit (16 per cent). The contaminations of water, soil, and food by the urine of these rodents and possibly mice, gophers, or other rodents furnish the seeds for the human infections. Since the intact epidermis is quite resistant to the penetration of the leptospira, the contaminated water must by necessity be brought in contact with the mucous membrane.

In the city with a continuous control of the rat population as a plague preventive measure, the exposures of man to the classical rat leptospira are limited to water accidents, contact with sewage or mud and soil in the vicinity of rodent harborages.

Although the serological tests of the rat strains thus far isolated identify the organisms as indistinguishable from the classical strain studied throughout the world, it is important to remember that other types, probably antigenic variants, may be encountered. The diagnosis of human leptospirosis must employ the serological tests reservedly; just as in typhoid fever the ultimate proof of clinical Weil's disease depends on the isolation of the causative spirochete.

CANINE LEPTOSPIROSIS

The blood serum of a veterinarian, who had an attack of undiagnosed malady complicated by icterus and nephritis 8 months before the test was made, agglutinated *Leptospira canicola* in a dilution of 1:300. More recently, this spirochete has been isolated from the urine of an assistant veterinarian, whose blood clumped and lysed the *Leptospira canicola* in a dilution of 1:10,000 (4+) and 1:30,000 (3+) and *Leptospira icterohaemorrhagiae*

1:100 (4+). In both cases, the epidemiological inquiries strongly incriminated the handling of dogs suffering from "yellow" or Stuttgart's disease. It may, therefore, be appropriate to review the essential facts which have been collected concerning these canine diseases during the past 2 years.

For some time, the hospital of the Society for the Prevention of Cruelty to Animals in San Francisco has noted a high mortality among dog patients suffering from jaundice or severe hemorrhagic gastroenteritis with or without icterus. At the request of Dr. S. T. Michael, 87 dogs, either dead or moribund, have been submitted for examination in order to determine the cause of the illness or death. The prominent autopsy lesions classed the dogs into two types—hemorrhagic and icteric. The former, seen in 38 dogs, resembles Stuttgart's disease or canine typhus, while the latter noted in 42 animals is indistinguishable from "yellows" or canine jaundice. Seven dogs had passed through both types, death occurring while they were in the icteric stage.

Since the gross lesions are in every respect similar to those described by Okell, Dalling, and Pugh,[12] Wirth,[13] Klarenbeek,[14] and others, and since they will be detailed elsewhere, suffice it to record that leptospira have been demonstrated in the organs of the cadavers of both types in darkfield preparations and properly stained sections prepared from the kidneys, occasionally spleen and liver.

The isolation of these spirochetes offered many difficulties but to date 11 cultures have been obtained from California dogs. Nine were secured directly by culturing the blood from 2 days to a few hours before death or from the clotted blood at the time of autopsy. In two instances, the strains were cultured from the peritoneal fluid or heart blood of very young guinea pigs injected with the emulsion of kidneys of infected dogs. Failure to culture the leptospira is largely attributable to the heavy bacterial contaminations of the tissues secured from the moribund dogs, and the low pathogenicity of the organisms for guinea pigs. Repeated passages through these rodents are required to induce fatal infections; as a rule, hemorrhages on the viscera and the lungs are noted and a general icterus is very rare.

The isolated leptospira strains are serologically identical with *Leptospira canicola* recognized by Klarenbeek and Schüffner in 1934 in Holland as a specific spirochete of the dog. The independent position of this leptospira has been fully established by Walch-Sorgdrager and Schüffner,[15] who kindly identified the California strains. *Leptospira canicola* is widely distributed and has been found, aside from Holland, in Germany, Austria, and Denmark. Since it has never been isolated from rats, it is generally recognized that this rodent plays no rôle in the dissemination of Canicola infections.

Canine leptospirosis affects all breeds of dog, but rarely under 1 year of age. In California, the highest incidence is noted during the summer with the peak in July and August. The mortality is generally considered high, although accurate figures are not available. In San Francsico, the hospital furnishing the dogs estimates the losses at 80 to 90 per cent. Annually, approximately 150 cases are brought to the clinic for treatment. Fatal infections have been prominent among males; the ratio of the dogs autopsied and sex noted in the histories was males : females 67:18. According to the statistics of Kok in Holland, male dogs are three times more frequently infected than females.

Since it has been impossible to judge the incidence of canine leptospirosis, in particular the Canicola infection in San Francisco and Northern California, a series of serological tests have been un-

dertaken. Of 47 normal dogs obtained from one source, 16 or, 34 per cent, gave serum reactions (1:100 to 1:300,000) indicative of a passed or subclinical leptospirosis infection. The dogs of a rural community showed a slightly lower percentage—14.3 per cent or 4 in 28 canines—of latent infections.

Through the courtesy of Dr. Norman J. Pyle of the Lederle Laboratories, Pearl River, New York, the blood sera of 111 dogs, comprising 13 different breeds ranging in age from 1 month to 12 years, were subjected to agglutination and lysis tests with leptospira strains. Ten dogs (9 per cent) agglutinated *Leptospira canicola* in dilutions 1:100 to 1:300,000, while 3, or 2.7 per cent, reacted with *Leptospira icterohaemorrhagiae*.

The existence of canine leptospirosis in the East had been suspected, but it is now proved that both types of leptospira may cause clinical and latent infections in a manner and distribution somewhat similar to that reported from Holland. The observations of Molner and Kasper [16] in Detroit would indicate the existence of canine Weil's disease in the Middle West. As a rule, the Canicola infections overshadow those due to the classical strains. According to Klarenbeek, in 1937, 31 dogs reacted with the *Leptospira canicola* and 21 with the *Leptospira icterohaemorrhagiae* strains. Previous data indicate the following relationship: *Leptospira canicola : Leptospira icterohaemorrhagiae* 125:89. On the other hand, in a Danish village, Borg and Petersen and Jacobsen [17] found the sera of 18 in a series of 53 dogs (33 per cent) to give serum reactions indicative of latent classical Weil's disease (*Leptospira icterohaemorrhagiae* serum titers 1:300 to 1:30,000). Only 1 dog of the series reacted with *Leptospira canicola;* he shed the specific spirochete in the urine. Thus 19 dogs, or nearly one-third of the dog population examined, suffered or had passed through leptospira infection.

The absence of classical strain infections among the canines of San Francisco and California is interesting, and may in some way be associated with the rodent control measures which prevent the hunting of rats by dogs.

The incidence of latent infections increases with age. In dogs over 6 years of age, nearly 60 per cent show the residuals of a latent infection (Kok). The California Canicola leptospirosis is complicated by icterus, and in this respect differs from that seen in Holland. The renal lesions are, however, remarkably similar to those described by Dhont, Klarenbeek, Schüffner, and Voet.[18] In fact, the nephritis, which may lead to acute or subacute fatal uremia, persists following recovery and forms the basis for a leptospiruria for several months.

It is this shedder stage with the *Leptospira canicola* which doubtless maintains the epidemization of the dog population in form of acute and fatal, atypical, abortive, and latent infections. Since the dog exhibits great interest for the urine and the genitalia of its own species, the infection is doubtless spread by contact directly through the tongue or nose. This behavior is preëminent among male dogs and thus explains the higher incidence. Sexual intercourse may equally be a factor. General uncleanliness may lead to the infection of an entire dog family and to clinical or latent human cases.

HUMAN "LEPTOSPIROSIS CANICOLARIS" OR CANICOLA FEVER

The two observations on Canicola fever in California may be classed with the occupational diseases. Both the veterinarian and, in the second case, an assistant in a dog pound handled a great many (about 150 annually) dogs suffering from leptospirosis. However, it is not unlikely that Canicola fever

is more widely prevalent than is indicated from the available records. Mild cases are difficult to diagnose and Canicola infections, without any icterus, prevalent among dogs may readily cause atypical or abortive cases in the owners (Roos, Walch-Sorgdrager and Schüffner).[19]

Without a special bacteriological examination, an influenza or undulant fever-like disease or a meningitis may be suspected as a Canicola infection provided the inquiry discloses an association with dogs. During the past 3 years, the diagnosis of Canicola fever has been established for 12 human beings living in Holland. At least 6 cases have been recognized in Denmark. Brammer, Petersen, and Scheel-Thomsen[20] traced the infection of a 25 year old housemaid with signs suggestive of undulant fever or miliary tuberculosis, but with a Canicola serum titer of 1:300, to a 7 month old puppy which lived in the house and suffered from an acute attack of nephritis. The persistent dysuria which followed forced the maid to mop up after the dog several times a day.

WEIL'S DISEASE TRANSMITTED FROM DOGS

Aside from the 20 cases of Canicola fever thus far reported from Holland, Denmark, and the United States, human Weil's disease caused by the classical strain transmitted from the dog to man have been reported. The two infections described by Krumbein and Frieling[21] and one by Montagu Lawrence and Okell[22] have not been proved bacteriologically. On the other hand, the fourth case seen by Borg and Petersen and Jacobsen in a plumber was traced to his pet dog, an 8 month old "Rattler Pinscher" with serum titer for the classical strain of 1:30,000 and positive findings of spirochetes in the urine. Two cases of Weil's disease in Detroit are doubtless of canine origin.

LATENT LEPTOSPIROSIS

In view of the widespread and regionally high incidence of murine and canine leptospirosis, it is reasonable to suspect that aberrant human infections due to water accidents, etc., and due to association with diseased subclinically infected dogs may be more frequently encountered than the present reports would indicate. The finding of leptospira antibodies by Mason[23] in the sera of 6 out of 11 rat catchers, none of whom recollected having been jaundiced, strongly suggests the existence of latent infections.

In San Francisco, 1 of 10 sanitarians engaged in rodent control work agglutinated *Leptospira icterohaemorrhagiae* in a dilution 1:300.

Roos,[19] in an intriguing report on Canicola fever in a family, discovered with the aid of the serologic tests two additional contact infections in a young adult and child, who apparently had passed through a leptospirosis diagnosed as influenza. The original case, which led to the discovery of the focus, suffered from meningitis. These and other less carefully investigated mysterious illnesses rather forcibly indicate that human Canicola disease may masquerade in a community in form of atypical, abortive, and subclinical infections. It is, therefore, recommended that in future all sera submitted to public health laboratories for the Widal or Brucella reaction be subjected to tests with different leptospira strains.

Since at least 40 per cent of the human Weil's infections may not be accompanied by an icterus, the extent of this disease of murine or even canine origin requires further investigation. However, in this connection, it is imperative to extend a word of warning. The bacteriological diagnoses of leptospirosis, in particular the serological tests, require considerable experience and judicious interpretation. They

should be, therefore, entrusted to a few properly qualified laboratories.

The facts here recorded amply attest to the increasingly important fact that the animal kingdom is a reservoir of disease.

REFERENCES

1. Blumer, G. *J.A.M.A.*, 81:353, 1923.
2. Pickles, W. N. *Brit. J. Child. Dis.*, 33:192, 1936.
3. Morgan, M. T., and Brown, H. C. *Rep. Pub. Health & Med.* Subj. No. 42, London, 1927.
4. Findlay, G. M., Dunlop, J. L., and Brown, H. C. *Tr. Roy. Soc. Trop. Med. & Hyg.*, 25:7, 1931–1932.
5. Yenikomshian, H. A., and Dennis, E. W. *Tr. Roy. Soc. Trop. Med. & Hyg.*, 32:189, 1938.
6. Packchanian, A. *Bull. Office internat. d'hyg. pub.*, 29:2350, 1937.
7. *J. Bact.*, 36:37, 1938.
8. *Proceedings of the Staff Meetings of the Clinic of Queen's Hospital, Honolulu, T. H.*, March, 1938, Vol. 4, No. 3. Personal Communication.
9. Syverton, J. T., Stiles, W. W., and Berry, G. P. *J. Bact.*, 36:37, 1938.
10. Schüffner, W. *Arch. f. Schiffs.-u. Tropen-Hyg.*, 36:239, 1932.
11. Esseveld, H. Thesis. Amsterdam, 1937.
12. Okell, C. C., Dalling, T., and Pugh, L. P. *Vet. J.*, 81:3, 1925; *Brit. Med. J.*, 1:34, 1925; and *Proc. Roy. Soc. Med.*, 18:17, 1925.
13. Wirth, D. *Wien. klin. Wchnschr.*, 50:1115, 1937.
14. Klarenbeek, A. *Tijdschr. v. Diergeneesk.*, 62:1182, 1935, and *Twelfth Int. Vet. Congress*, New York, 3:349, 1934.
15. Walch-Sorgdrager, B., and Schüffner, W. *Zentralbl. f. Bakteriol.*, I. Abt., Orig., 141:97, 1938.
16. Molner, J. G., and Kasper, J. A. *J.A.M.A.*, 110:2069, 1938.
17. Petersen, C. B., and Jacobsen, E. *Compt. rend. Soc. de biol.*, 126:797 and 799, 1937.
18. Dhont, C. M., Klarenbeek, A., Schüffner, W. A. P., and Voet, J. *Nederl. Tijdschr. v. geneesk*, 78:5197, 1934.
19. Roos, C. J., Walch-Sorgdrager, B., and Schüffner, W. A. P. *Nederl. Tijdschr. v. geneesk.*, 81:3324, 1937.
20. Brammer, E., Petersen, C. B., and Scheel-Thomsen, A. *Ugesk. f. laeger*, 100:419, 1938.
21. Krumbein, R., and Frieling, B. *Deutsch. med. Wchnschr.*, 42:564, 1916.
22. Montagu Lawrence, C. J., and Okell, C. C. *Lancet*, II; 327, 1929.
23. Mason, W. N. M. *J. Path. & Bact.*, 46:631, 1938.

Special Syringe for Skin Tests

THOMAS B. MAGATH, M.D.
Division of Clinical Pathology, Section on Parasitology
The Mayo Clinic, Rochester, Minn.

THERE are several tests which are commonly conducted on a large scale in the interest of public health, which consist of the injection, intracutaneously, of 0.1 cc. of fluid, usually into the skin of the forearm. The most common, of course, are the Mantoux, Schick, and Dick tests. For conducting such tests on a large scale it is customary to fill a tuberculin syringe or other syringe of a similar nature and to give injections to a series of patients successively, changing the needle before each injection. By this method, as commonly practised, the first individual receives a "full" 0.1 cc. and thereafter individuals receive 0.1 cc. less the amount present in the shank of the needle. If one corrects for this he has a choice of either wasting a large amount of the test material in order to begin each injection on the line, or of using interval markings on the syringe, which frequently leads to considerable error. A number of syringes which are calibrated only in tenths of a cubic centimeter and especially made for this purpose will not permit correction at all. It may be rightly suggested that certain discrepancies in reports have been due to errors caused by this method of procedure when a large group has been tested.

In order to overcome this difficulty a syringe * has been especially devised which takes into account the loss of fluid in the needle shank. The syringe is made of special resistant glass and

FIGURE I—Special syringe for use in various skin tests, when the same test is being given to large numbers of persons

can be sterilized, either by boiling or by dry baking. It is calibrated to deliver eight doses of 0.1 cc. each, and has primary and secondary markings. Between the primary and secondary markings there is sufficient fluid to fill the shank of a 5/8 inch, 26 gauge needle. The procedure of injecting is to fill the syringe to the last mark; the first dose is administered by pushing the plunger to the first secondary marking. A new needle is put on and the plunger is pushed in to the second primary marking, thus filling the needle. The second injection is made by administering the contents of the syringe down to the second secondary marking, and so on, until the eight doses are administered. With the use of this syringe the patient gets exactly 0.1 cc. without any danger of misreading the amount.

* This syringe has been especially made by the Becton-Dickinson Co., Rutherford, N. J.

Revision of Methods and Standards for Certified Milk*

J. HOWARD BROWN, PH.D.

Department of Pathology and Bacteriology, Johns Hopkins University, Baltimore, Md.; Chairman of the Committee on Methods and Standards of the American Association of Medical Milk Commissions

IT seems appropriate that a representative of the American Association of Medical Milk Commissions, a pioneer organization for raising the standards of milk production, should inform the American Public Health Association of progressive changes in Methods and Standards for the Production of Certified Milk.† These methods and standards are revised annually and the production of certified milk may be regarded as a laboratory in which new methods of practical value to the entire dairy industry may be introduced and tested. Such has been the case with the control of tuberculosis, of Bang's disease, and of hemolytic streptococcus infections transmissible from man to the cow and from the cow to man.

In May, 1936, an improved medium for making plate counts of bacteria was adopted for certified milk. A year later the results of using this medium in comparison with the standard nutrient agar of the A.P.H.A. were reported and published in the *American Journal of Hygiene* (January, 1938). Since then, and on a more limited scale, the new medium has been compared with not only standard nutrient agar but also the "tryptone glucose skim milk agar." The results may be summarized by a quotation from an article in the *American Journal of Public Health* (September, 1938) which reads

> A.A.M.M.C. agar . . . has been found to yield considerably higher counts than does the standard nutrient agar of the A.P.H.A., counts of the same magnitude as may be obtained with the "tryptone glucose skim milk agar" . . . The improved medium not only gives a bacterial count that is more nearly true but its adoption serves, in effect, to raise the standard for certified milk.

The A.A.M.M.C. agar in dried form may be obtained from two manufacturers, The Baltimore Biological Laboratory and the Difco Laboratories. At this point it is gratifying to be able to say that since the adoption of this medium the quality of certified milk has continued to improve. In the *Methods and Standards for Certified Milk*, meat infusion agar plus blood is suggested as an alternative medium for making total bacterial plate counts. This medium serves also to reveal the presence of hemolytic streptococci. Blood agar is especially suitable for the examination of unpasteurized certified milk since

---

* Read before the Laboratory Section of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 28, 1938.

† Copies may be obtained from the American Association of Medical Milk Commissions, Inc., 1265 Broadway, New York, N. Y.

such milk is relatively free from all bacteria other than those which come from the udder. It may not be suitable for grades of milk which are more subject to exogenous contamination by saprophytic bacteria. I should be interested to know what the effect of incubation of agar plates at temperatures lower than 37° C. might be on the bacterial plate counts of certified milk. It might be that the kinds of bacteria found in such milk would not grow so well at lower temperatures as do those found in other grades of milk. Whatever media or temperature may be used, I believe that the American Association of Medical Milk Commissions will favor those methods which give the highest counts.

The determination of coliform counts is being found useful for the control of certified milk production. It is required that certified milk–raw shall not contain more than 10 coliform organisms per cc. and certified milk–pasteurized shall contain no coliform organisms. It is interesting to find that a high coliform count is not always associated with a high total bacterial count. It is in these instances that the coliform count is an indication of a break in the technic of milk production or handling and usually it can be found. Sometimes it is in the cleaning of udders, sometimes in faulty milking, sometimes in dusty stables, sometimes in a faulty valve or dead end of pipe, sometimes in imperfectly sterilized bottling machinery or bottles. In pasteurized milk the presence of coliform organisms indicates either ineffective pasteurization or subsequent contamination of the milk. For a high grade milk the coliform count is a good trouble detector although it is admitted that even the finding of *Escherichia coli* does not have the same significance in milk as in drinking water.

The spore test is of considerable value in maintaining the cleanliness of certified milk. Pasteurization does not sterilize milk, nor does it kill all of the vegetative bacteria in milk. If, however, milk is heated at 80° C. (176° F.) for 15 minutes the vegetative bacteria are killed and only the spores remain alive. This test for the cleanliness of milk was described by Weinzirl and Veldee in the *American Journal of Public Health* in 1915 and 1921. It is now included in *Methods and Standards for Certified Milk*. I think it must be admitted that if of ten tubes of 10 cc. each of undiluted milk subjected to the spore test, few or none show any bacterial growth, it must be a very clean milk.

The identification of hemolytic streptococci whether in milk or in human throats has been greatly simplified and the time required shortened by the precipitin grouping of Lancefield. The technic referred to in the 1938 edition of *Methods and Standards* and the availability of grouping sera bring this method within the reach of diagnostic and milk control laboratories.[2] It is now possible to determine the serological group to which a hemolytic streptococcus belongs within 48 hours after the throat swab or milk sample is taken. Simple cultural methods are also described which correlate closely with serological differentiation.

A valuable contribution to the technic for the routine examination of throat swabs in blood agar is the "streak-pour" plate which has been in use at the laboratory of the Maryland State Department of Health for some time. As described in *Methods and Standards* for 1938, the method is as follows.

> Streak the swab across one edge of the solidified surface of a nutrient agar plate (preferably infusion agar without blood or dextrose). With the wire loop streak the material from the original streak over the remaining surface of the agar. Over the inocculated surface pour not more than 5 cc. of melted blood agar.

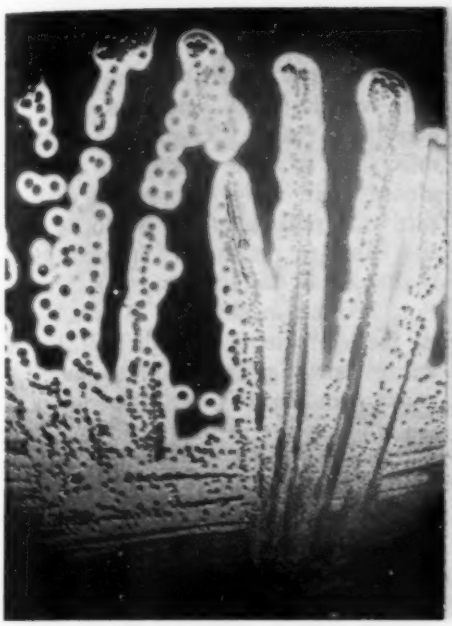


FIGURE I—A blood agar plate streaked with a throat swab. Most of the hemolytic surface colonies were of staphylococci. It was extremely difficult to find any streptococci.

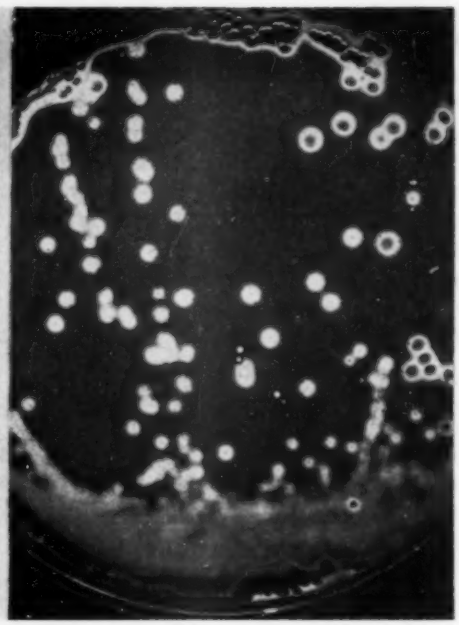


FIGURE II—A "streak-pour" blood agar plate inoculated with the same throat swab as was the plate shown in Figure I. There were some hemolytic surface colonies of staphylococci at the periphery of the plate but the deep hemolytic colonies were of streptococci. As is often the case, the deep colonies of staphylococci were non-hemolytic.

Although for the recognition of streptococci nothing is better than a "pour" plate of properly diluted material, the "streak-pour" plate reduces the labor, saves time, and eliminates the chance involved in making a proper dilution from the swab. It is far superior to the ordinary "streak" blood agar plate as may be illustrated by the Figures I and II.

The certified milk industry is becoming mastitis conscious. I do not refer to the rare cases of mastitis caused by the infection of an udder by a hemolytic streptococcus of human origin which may cause an outbreak of septic sore throat or scarlet fever. In the entire 45 years of the history of certified milk only one such outbreak has occurred and that was 12 years ago, before present methods of control were known or in effect. I refer rather to the ordinary barnyard variety of mastitis which is so common in dairy cattle throughout the world and the streptococci of which do not cause epidemics among consumers of the milk. Nevertheless, largely for economic and esthetic reasons, progress is being made in the control of bovine mastitis and its elimination from certified milk herds. Beginning this year more detailed herd records are required, the milk of cows entering or reëntering certified milk production is required to undergo bacteriological examination, and an attempt has been made to place the various tests which have been proposed for the early detection of mastitis in their proper perspective.

Safety is only one of the qualities of a superior milk. There are possibilities of improving the flavor and nutritive quality of milk. Flavor may be

a matter of taste and habit but it is now known that the butter fat content is not the only variable nutritive factor in milk although it may be the most obvious one. It is well known that the diet of the cow affects the nutritive quality of her milk, that the winter milk of cows fed on dry feed is inferior to the summer milk of the same cows fed on green pastures. Recently it has also been demonstrated that many of the qualities of summer feed may be preserved for winter feeding by such methods as the rapid artificial drying of hay, the preserving of grasses by molasses (molasses ensilage) or acids (A.I.V. ensilage) and that the vitamin D content of milk may be increased at will by the feeding of irradiated yeast. By such methods winter milk may be made equal to summer milk. This line of progress in dairying is in the making, is the subject of special instructions issued to the producers of certified milk, and is being followed by many of them.

In conclusion I would urge health officials to take a broader interest in milk than to make it safe. I am convinced that under proper supervision safe raw milk may be produced. In the effort to produce such milk many fundamental problems of milk production become incentives. The solution of these problems is of benefit to the entire dairy industry and to the consuming public. Your coöperation in maintaining the methods and standards for the production of certified milk is invited.

REFERENCE

1. Brown, J. Howard. A Simplified Method for Grouping Hemolytic Streptococci by the Precipitin Reaction. *J.A.M.A.*, III:310–311 (July 23), 1938.

Time Lost by Industrial Workers from Disabling Sickness and Accidents During the Early Days of Disability*

WILLIAM M. GAFAFER, D.Sc.

Senior Statistician, United States Public Health Service, Washington, D. C.

ONE of the sources of industrial disability data used for a number of years by the Division of Industrial Hygiene of the National Institute of Health is the records of industrial sick benefit organizations. Since the majority of these organizations subscribe to a 7 day waiting period, that is, 7 days must elapse between the onset of disability and the commencement of the payment of benefits, the records of such organizations contain no information on disabilities lasting 7 days or less,[1] and hence the published reports on this material concern themselves only with disabilities lasting 8 days or longer. This situation frequently raises the question of the magnitude of the time lost from short disabilities, and its relation to time lost from disabilities of all durations. An opportunity to study the question presented itself when the requisite data were made available by the record of one day absences or longer that occurred among the employees of a public utility company in Massachusetts.

For a quarter-century this company has been operating under a liberal disability benefit plan which provides for payment of wages in full or in part during disability beginning with the first day of absence. During the second 6 months of membership an employee is allowed accumulated sick leave of one day per month at full pay. After the first year of membership full pay for continuous disability is allowed for 15 weeks; beyond this time three-fourths to one-fourth of the employee's wages are paid, the period of payment depending upon the number of years of employment with the company. However, for present purposes, all cases of continuous disability extending over 372 calendar days were automatically considered closed at the end of the 372nd day. In all instances *days* refer to calendar days, and absences of less than one full calendar day are omitted.

The analysis covers the 5 years, 1933–1937. The number of male person-years of membership was 12,969, while the number for females was 3,272. This membership is equivalent to the exposure for one year of 12,969 males and 3,272 females. In the analysis no

* Read before the Industrial Hygiene Section of the American Public Health Association at the Sixty-seventh Annual Meeting in Kansas City, Mo., October 28, 1938. In connection with this paper the reader is referred to *Public Health Reports*, 53: 1273–1288 (July 29), 1938.

TABLE I—FREQUENCY OF ABSENCES LASTING ONE CALENDAR DAY OR LONGER, AND PERCENTAGE OF TOTAL EMPLOYEES OF A PUBLIC UTILITY,

[Number of person-years of membership:

Day of Disability After Onset	Annual Number of Absences per 1,000 Persons				Percentage of Total Days of Disability				Annual Number per 1,000	
	Males		Females		Males		Females		Males	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
	All disabilities [2]									
1st	900.0	900.0	1,820.3	1,820.3	12.0	12.0	16.8	16.8	538.0	538.0
2nd	695.3	1,595.3	1,226.8	3,047.1	9.2	21.2	11.3	28.1	430.1	968.1
3rd	543.2	2,138.5	842.6	3,889.7	7.2	28.4	7.8	35.9	336.6	1,304.7
4th	415.4	2,553.9	613.7	4,503.4	5.5	33.9	5.7	41.6	251.4	1,556.1
5th	329.4	2,883.3	471.3	4,974.7	4.4	38.3	4.3	45.9	193.5	1,749.6
6th	262.1	3,145.4	384.2	5,358.9	3.5	41.8	3.5	49.4	145.7	1,895.3
7th	205.6	3,351.0	313.6	5,672.5	2.7	44.5	2.9	52.3	105.6	2,000.9
8th	153.1	3,504.1	231.7	5,904.2	2.0	46.5	2.1	54.4	70.0	2,070.9
9th	135.2	3,639.3	206.9	6,111.1	1.8	48.3	1.9	56.3	57.9	2,128.8
10th	121.7	3,761.0	184.3	6,295.4	1.6	49.9	1.7	58.0	49.1	2,177.9
11th	110.0	3,871.0	162.3	6,457.7	1.5	51.4	1.5	59.5	41.7	2,219.6
12th	99.5	3,970.5	147.0	6,604.7	1.3	52.7	1.4	60.9	35.4	2,255.0
13th	91.1	4,061.6	131.1	6,735.8	1.2	53.9	1.2	62.1	30.4	2,285.4
14th	83.4	4,145.0	119.8	6,855.6	1.1	55.0	1.1	63.2	26.5	2,311.9
15th	71.6	4,216.6	102.1	6,957.7	1.0	56.0	0.9	64.1	20.0	2,331.9
16th	69.2	4,285.8	99.3	7,057.0	0.9	56.9	0.9	65.0	18.6	2,350.5
17th	67.2	4,353.0	96.9	7,153.9	0.9	57.8	0.9	65.9	17.8	2,368.3
18th	65.8	4,418.8	92.9	7,246.8	0.9	58.7	0.9	66.8	17.0	2,385.3
19th	63.7	4,482.5	89.9	7,336.7	0.9	59.6	0.8	67.6	16.0	2,401.3
20th	61.8	4,544.3	85.9	7,422.6	0.8	60.4	0.8	68.4	15.3	2,416.6
21st	59.2	4,603.5	82.5	7,505.1	0.8	61.2	0.8	69.2	14.4	2,431.0
* * * * * *	**	**	**	**	*	**	*	**	**	**
372nd	2.2	7,518.2	2.1	10,855.1	0.03	100.0	0.02	100.0	0.5	2,977.2
Total for 372 days..	900.0	——	1,820.3	——	100.0	——	100.0	——	538.0	——
	Nonrespiratory-nondigestive diseases [3]									
1st	150.5	150.5	500.9	500.9	6.1	6.1	16.2	16.2	45.6	45.6
2nd	120.4	270.9	274.1	775.0	4.9	11.0	8.9	25.1	38.5	84.1
3rd	99.6	370.5	177.3	952.3	4.1	15.1	5.7	30.8	32.5	116.6
4th	82.8	453.3	128.4	1,080.7	3.4	18.5	4.1	34.9	27.2	143.8
5th	70.2	523.5	101.2	1,181.9	2.9	21.4	3.3	38.2	23.0	166.8
6th	59.8	583.3	87.1	1,269.0	2.4	23.8	2.8	41.0	20.2	187.0
7th	51.0	634.3	76.7	1,345.7	2.1	25.9	2.5	43.5	17.6	204.6
8th	42.3	676.6	59.3	1,405.0	1.7	27.6	1.9	45.4	14.2	218.8
9th	39.2	715.8	53.8	1,458.8	1.6	29.2	1.7	47.1	12.7	231.5
10th	36.9	752.7	50.4	1,509.2	1.5	30.7	1.6	48.7	11.7	243.2
11th	34.4	787.1	46.1	1,555.3	1.4	32.1	1.5	50.2	10.8	254.0
12th	31.7	818.8	44.0	1,599.3	1.3	33.4	1.4	51.6	10.5	264.5
13th	30.2	849.0	40.7	1,640.0	1.2	34.6	1.3	52.9	9.7	274.2
14th	28.3	877.3	37.3	1,677.3	1.1	35.7	1.2	54.1	9.0	283.2
15th	25.4	902.7	34.2	1,711.5	1.0	36.7	1.1	55.2	7.5	290.7
16th	24.8	927.5	33.3	1,744.8	1.0	37.7	1.1	56.3	7.4	298.1
17th	24.3	951.8	33.0	1,777.8	1.0	38.7	1.1	57.4	7.2	305.3
18th	23.8	975.6	32.1	1,809.9	1.0	39.7	1.0	58.4	7.1	312.4
19th	23.1	998.7	31.5	1,841.4	0.9	40.6	1.0	59.4	6.9	319.3
20th	22.4	1,021.1	31.5	1,872.9	0.9	41.5	1.0	60.4	6.8	326.1
21st	21.7	1,042.8	30.5	1,903.4	0.9	42.4	1.0	61.4	6.6	332.7
* * * * * *	**	**	**	**	*	**	*	**	**	**
372nd	1.4	2,456.1	0.3	3,100.5	0.1	100.0	0.01	100.0	0.2	616.4
Total for 372 days..	150.5	——	500.9	——	100.0	——	100.0	——	45.6	——

[1] The number of days of disability is the number of calendar days from the date disability began to the date of return to work, or to the 372nd day, inclusive. For a specific day, the number of absences is the same as the number of persons absent, and the number of days absent, respectively.

[2] Number of absences: Males, 11,672; females, 5,956. Number of days of disability: Males, 97,504; females, 35,518.

[3] Number of absences: Males, 6,977; females, 3,078. Number of days of disability: Males, 38,611; females, 17,335.

DAYS OF DISABILITY, ACCORDING TO BROAD CAUSE GROUPS, BY SPECIFIC DAY AFTER ONSET; EXPERIENCE OF 1933–1937, INCLUSIVE [1]

Males, 12,969; females, 3,272.]

Number of Absences per 1,000 Persons		Percentage of Total Days of Disability				Annual Number of Absences per 1,000 Persons				Percentage of Total Days of Disability			
Females		Males		Females		Males		Females		Males		Females	
Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
Respiratory diseases [2]						Digestive diseases [4]							
940.7	940.7	18.1	18.1	17.8	17.8	148.3	148.3	298.3	298.3	15.3	15.3	19.6	19.6
727.4	1,668.1	14.4	32.5	13.7	31.5	89.8	238.1	164.4	462.7	9.3	24.6	10.8	30.4
524.1	2,192.2	11.3	43.8	9.9	41.4	59.1	297.2	95.0	557.7	6.1	30.7	6.3	36.7
387.5	2,579.7	8.5	52.3	7.3	48.7	39.2	336.4	60.5	618.2	4.0	34.7	4.0	40.7
293.7	2,873.4	6.5	58.8	5.5	54.2	28.7	365.1	45.3	663.5	3.0	37.7	3.0	43.7
235.0	3,108.4	4.9	63.7	4.4	58.6	23.4	388.5	35.5	699.0	2.4	40.1	2.3	46.0
183.7	3,292.1	3.5	67.2	3.5	62.1	19.2	407.7	30.6	729.6	2.0	42.1	2.0	48.0
130.2	3,422.3	2.4	69.6	2.5	64.6	15.3	423.0	23.6	753.2	1.6	43.7	1.6	49.6
113.1	3,535.4	1.9	71.5	2.1	66.7	14.5	437.5	22.3	775.5	1.5	45.2	1.5	51.1
96.6	3,632.0	1.7	73.2	1.8	68.5	13.6	451.1	20.5	796.0	1.4	46.6	1.3	52.4
81.0	3,713.0	1.4	74.6	1.5	70.0	13.1	464.2	19.3	815.3	1.4	48.0	1.3	53.7
71.2	3,784.2	1.2	75.8	1.4	71.4	12.6	476.8	17.1	832.4	1.3	49.3	1.1	54.8
59.9	3,844.1	1.0	76.8	1.1	72.5	12.0	488.8	16.5	848.9	1.2	50.5	1.1	55.9
53.2	3,897.3	0.9	77.7	1.0	73.5	11.4	500.2	16.2	865.1	1.2	51.7	1.1	57.0
42.2	3,939.5	0.7	78.4	0.8	74.3	10.9	511.1	14.4	879.5	1.1	52.8	1.0	58.0
40.3	3,979.8	0.6	79.0	0.8	75.1	10.9	522.0	14.4	893.9	1.1	53.9	1.0	59.0
38.8	4,018.6	0.6	79.6	0.7	75.8	10.5	532.5	14.1	908.0	1.1	55.0	0.9	59.9
36.0	4,054.6	0.6	80.2	0.7	76.5	10.5	543.0	14.1	922.1	1.1	56.1	0.9	60.8
33.9	4,088.5	0.5	80.7	0.6	77.1	10.4	553.4	14.1	936.2	1.1	57.2	0.9	61.7
30.5	4,119.0	0.5	81.2	0.6	77.7	10.4	563.8	14.1	950.3	1.1	58.3	0.9	62.6
29.1	4,148.1	0.5	81.7	0.5	78.2	10.1	573.9	14.0	964.3	1.0	59.3	0.9	63.5
**	**	*	**	*	**	**	**	**	**	*	**	*	**
0.9	5,298.0	0.02	100.0	0.02	100.0	0	967.1	0.3	1,518.9	0	100.0	0.02	100.0
940.7	——	100.0	——	100.0	——	148.3	——	298.3	——	100.0	——	100.0	——
Noniindustrial accidents [6]						Industrial accidents [7]							
77.0	77.0	7.4	7.4	9.6	9.6	17.6	17.6	3.4	3.4	3.5	3.5	2.5	2.5
58.1	135.1	6.2	13.6	7.2	16.8	16.5	34.1	2.8	6.2	3.3	6.8	2.0	4.5
43.4	178.5	5.3	18.9	5.4	22.2	15.4	49.5	2.8	9.0	3.1	9.9	2.0	6.5
35.2	213.7	4.4	23.3	4.4	26.6	14.8	64.3	2.1	11.1	2.9	12.8	1.6	8.1
29.6	243.3	3.7	27.0	3.7	30.3	14.0	78.3	1.5	12.6	2.8	15.6	1.1	9.2
25.1	268.4	3.3	30.3	3.1	33.4	13.0	91.3	1.5	14.1	2.6	18.2	1.1	10.3
21.1	289.5	2.9	33.2	2.6	36.0	12.2	103.5	1.5	15.6	2.4	20.6	1.1	11.4
17.1	306.6	2.3	35.5	2.1	38.1	11.3	114.8	1.5	17.1	2.3	22.9	1.1	12.5
16.2	322.8	2.1	37.6	2.0	40.1	10.9	125.7	1.5	18.6	2.2	25.1	1.1	13.6
15.6	338.4	1.9	39.5	2.0	42.1	10.4	136.1	1.2	19.8	2.1	27.2	0.9	14.5
14.7	353.1	1.7	41.2	1.8	43.9	10.0	146.1	1.2	21.0	2.0	29.2	0.9	15.4
13.8	366.9	1.7	42.9	1.7	45.6	9.3	155.4	0.9	21.9	1.9	31.1	0.7	16.1
13.1	380.0	1.6	44.5	1.6	47.2	8.8	164.2	0.9	22.8	1.7	32.8	0.7	16.8
12.5	392.5	1.5	46.0	1.6	48.8	8.2	172.4	0.6	23.4	1.6	34.4	0.5	17.3
10.7	403.2	1.2	47.2	1.3	50.1	7.8	180.2	0.6	24.0	1.5	35.9	0.5	17.8
10.7	413.9	1.2	48.4	1.3	51.4	7.5	187.7	0.6	24.6	1.5	37.4	0.5	18.3
10.4	424.3	1.2	49.6	1.3	52.7	7.4	195.1	0.6	25.2	1.5	38.9	0.5	18.8
10.1	434.4	1.1	50.7	1.3	54.0	7.4	202.5	0.6	25.8	1.5	40.4	0.5	19.3
9.8	444.2	1.1	51.8	1.2	55.2	7.3	209.8	0.6	26.4	1.4	41.8	0.5	19.8
9.2	453.4	1.1	52.9	1.2	56.4	6.9	216.7	0.6	27.0	1.4	43.2	0.4	20.2
8.6	462.0	1.1	54.0	1.1	57.5	6.4	223.1	0.3	27.3	1.3	44.5	0.2	20.4
**	**	*	**	*	**	**	**	**	**	*	**	*	**
0.3	802.9	0.03	100.0	0.04	100.0	0.1	501.4	0.3	134.8	0.02	100.0	0.2	100.0
77.0	——	100.0	——	100.0	——	17.6	——	3.4	——	100.0	——	100.0	——

[4] Number of absences: Males, 1,923; females, 976. Number of days of disability: Males, 12,542; females, 4,970.

[5] Number of absences: Males, 1,952; females, 1,639. Number of days of disability: Males, 31,854; females, 10,145.

[6] Number of absences: Males, 592; females, 252. Number of days of disability; Males, 7,994; females, 2,627.

[7] Number of absences: Males, 228; females, 11. Number of days of disability: Males, 6,503; females, 441.

reference is made to the age of the employees. It is sufficient to state at this time that according to the Bureau of the Census [2] the native white gainful male workers in 1930, under 35 years of age constituted 47 per cent of the total of ages 18 through 69 years, while the corresponding percentage for females was 64, and that in the instance of the present group of employees, the corresponding percentages for males and females, respectively, were 42 and 68. For male employees the number of absences lasting one calendar day or longer from all disabilities which ended during the 5 year period was 11,672 with 97,504 days of disability, and for female employees, the corresponding figures were 5,956 and 35,518, respectively. The causes of disability have been broadly grouped into respiratory diseases, digestive diseases, nonrespiratory-nondigestive diseases, nonindustrial accidents, and industrial accidents. Approximately 13 per cent of the absences were diagnosed by the company physician, 72 per cent by the plant nurse, and 15 per cent by the patient.

Table I shows, by sex and broad cause group, the frequency of absences together with the percentage of total days of disability for each day after onset of disability through the 21st day. This table contains all of the fundamental data necessary for the analysis, the development of the figures which are shown later, and the determination of the actual numbers upon which rates are based. To conserve space no tables derivable from Table I will be presented. In some instances, and these will be indicated in the titles to the figures, a simple calculation will be necessary to yield a particular figure. It should be borne in mind that for a specific day after onset of disability, the number of absences is the same as the number of employees absent, and the number of days absent, respectively.

ANALYSIS OF DATA

Percentage distribution, according to broad cause groups, of days lost on specific days of disability after onset—Figure I shows for both sexes the percentage distribution, according to broad cause groups, of days lost on specific days of disability after onset through the 21st day of disability. Thus among the males, of the total first-days lost, 60 per cent were accounted for by the respiratory diseases, 16 per cent by the digestive diseases, almost 17 per cent by the nonrespiratory-nondigestive diseases, 5 per cent by nonindustrial accidents, and 2 per cent by industrial accidents. The pattern of the figure is determined by the duration and frequency of the various disabilities entering the 5 cause groups. Thus if all of the disabilities had lasted 21 days, and if the same frequency had been yielded by each cause group, the resulting pattern would consist of 5 rectangles of equal area.

Among the males the percentage for the respiratory diseases ranks first in magnitude on each of the first 13 days, the percentage rising from 60 on the first day to 62 on the 3rd day and then gradually decreasing to 33 per cent on the 13th day. During this period the percentage for the nonrespiratory-nondigestive diseases gradually increases from 17 to 33 per cent, thus on the 13th day equalling the percentage for the respiratory diseases. On the 14th day and on each day thereafter the percentage for the nonrespiratory-nondigestive diseases is sufficiently large to assume first place among the percentages corresponding to the different cause groups. In the instance of the females the same phenomenon is evident not on the 14th day but on the 20th on which day the percentage for the respiratory diseases has dropped to 36 and the percentage for the nonrespiratory-nondigestive diseases has increased to 37. The observable sex

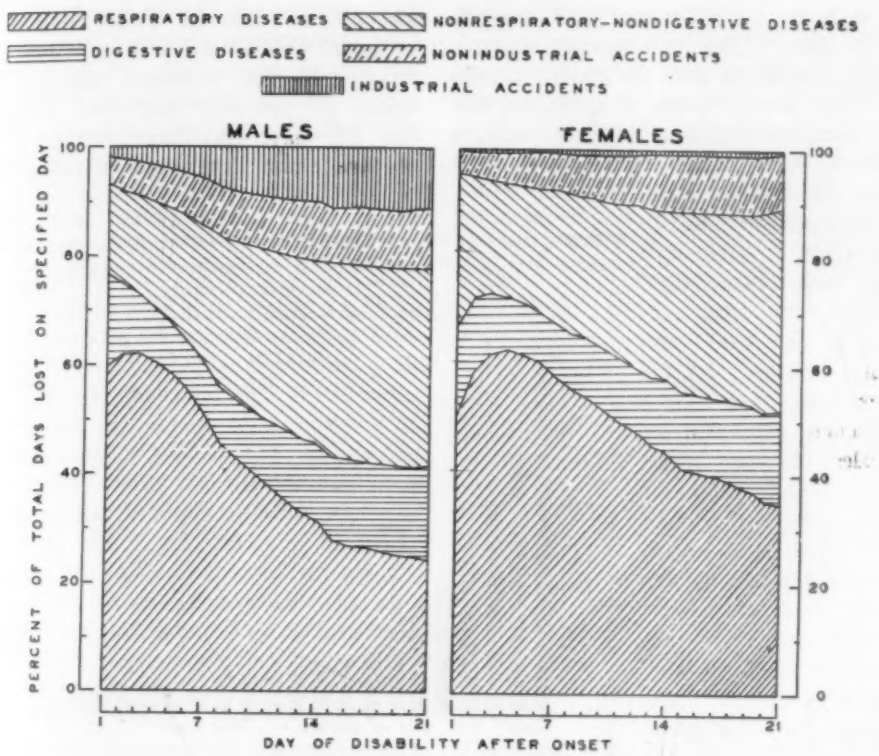


FIGURE I—Percentage distribution, according to broad cause groups, of days lost on specific days of disability after onset, employees of a public utility, 1933–1937. (Plotted points calculated from Table I.)

difference with respect to the nonrespiratory-nondigestive diseases during the first 2 days is probably accounted for by dysmenorrhea.

The percentages for the digestive diseases are of a lower order of magnitude beginning, among the males, at 16 per cent, falling to a minimum of 8.7 per cent on the 5th day, and gradually increasing to 17 per cent on the 21st day; the behavior of the percentages among the females is approximately similar to that of the males.

The percentages for nonindustrial accidents among the males gradually increase from 5 per cent on the first day to 11 per cent on the 21st day, and among the females the corresponding increase is from 4 to 10 per cent. Among the males the percentages for industrial accidents gradually increase from 2 to 11, while among the females they never become greater than 0.74 per cent during the first 21 days after onset of disability.

Frequency of absences, according to broad cause groups, on specific days of disability after onset—The frequency of absences from broad cause groups on specific days of disability after onset through the 21st day of disability is shown, among other things, in Table I, and graphically in Figure II (left-hand scale). It will be observed that with respect to all disabilities among the males there is an orderly decrease from 900 absences per 1,000 on the first day of disability to 59 on the 21st day; the females, however, on the first day yield a frequency of over 1,800 which de-

creases at a similar rate to 83 on the 21st day. Thus the females show a higher incidence than the males throughout the first 3 weeks of disability, but as duration increases the proportionate difference decreases; beyond the 21st day the difference becomes zero and finally negative. Although the males experienced 900.0 first day absences per 1,000 and the females 1,820.3 per 1,000, only 153.1 absences per 1,000 for males (17 per cent), and 231.7 absences per 1,000 for females (13 per cent) extended through the 8th day. It is of interest to observe the percentage composition of these 8th day absences by cause group (Figure I). Of the 153.1 8th day absences per 1,000 among males 46 per cent are accounted for by respiratory diseases, 28 per cent by nonrespiratory - nondigestive diseases, 10 per cent by digestive disease, 9 per cent by nonindustrial accidents, and 7 per cent by industrial accidents; the corresponding percentages for the females are, respectively, 56, 26, 10, 7, and 0.7.

Of interest also is the percentage of first day absences continuing through the 8th day according to cause group. With the use of data in Table I it will be found that of the first day absences from industrial accidents among the males, 64 per cent continued through the 8th day, the corresponding percentage among the females being 44.

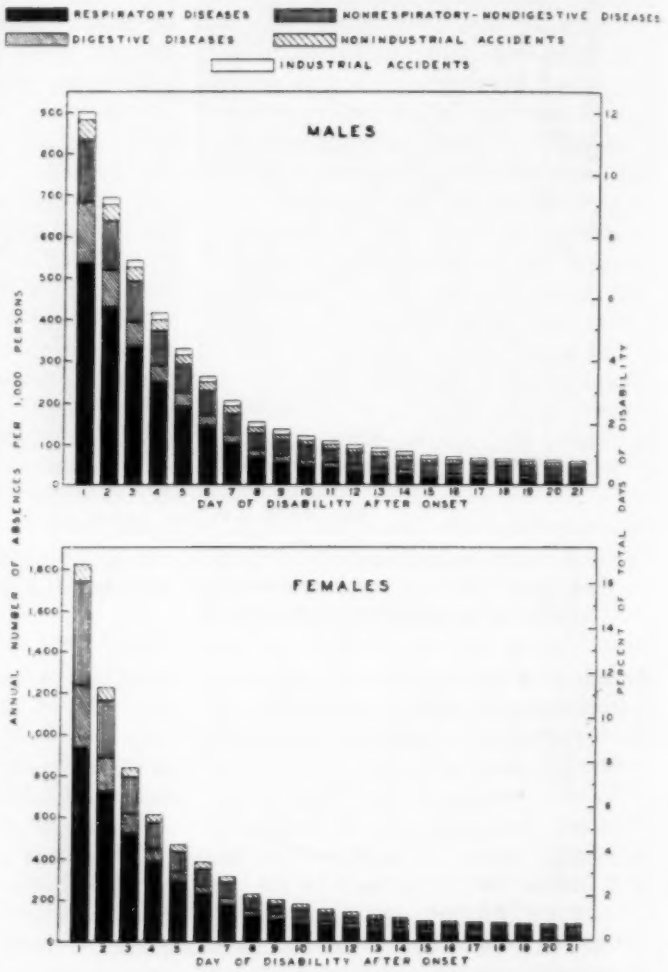


FIGURE II—*Left-hand scale:* Annual number of absences per 1,000 persons according to broad cause groups on specific days of disability after onset, employees of a public utility, 1933–1937. (Plotted directly from Table I. The vertical scales for males and females, respectively, are different. The industrial accidents among the female employees are not shown.) *Right-hand scale:* Per cent of total days of disability (1933–1937) corresponding to each day of disability after onset. (Plotted points calculated from Table I.)

The corresponding percentages for males and females, respectively, with respect to the other cause groups are, nonindustrial accidents, 31 and 22 per cent; nonrespiratory-nondigestive diseases, 28 and 12 per cent; respiratory diseases, approximately 14 per cent for both sexes; and digestive diseases, 10 and 8 per cent.

Percentage of total days of disability (1933–1937), according to broad cause groups, on specific days of disability after onset—The right-hand scale of Figure II shows for each broad cause group the percentage of the total days of disability (1933–1937) on specific days after onset of disability. Thus with regard to all disabilities, 12.0 per cent of the total days of disability among the males occurred during the first day after onset while the corresponding percentage for the females is 16.8, both percentages decreasing in an orderly manner to less than 0.8 per cent on the 21st day. The difference between the percentages for males and females becomes rapidly smaller as duration increases to the 5th day; thereafter the differences approximate zero, and finally become negative.

The daily percentage contribution of each broad cause group to the total days of disability graphically presented in Figure II shows that the percentages for each cause group gradually decline during the first 21 days of disability. Thus in the instance of the respiratory diseases among the males the percentage declines from over 7 on the first day to less than 0.2 on the 21st day; among the females the decline is from nearly 9 to less than 0.3 per cent. The percentage for the digestive diseases on the first day is less than 2 for the males and almost 3 for the females; both percentages become approximately 0.1 on the 21st day. For the nonrespiratory-nondigestive diseases the percentages on the first day for males and females, respectively, read 2 and 4.6, declining in both instances to less than 0.3 on the 21st day. Nonindustrial accidents among the males and females, respectively, contribute 0.6 and 0.7 per cent on the first day and decline to 0.09 and 0.08, respectively. Finally, among the males industrial accidents yield 0.23 per cent on the first day and 0.09 per cent on the 21st, the corresponding percentages for the females (not shown in the figure) being 0.03 and 0.01, respectively.

Figure III shows the result of placing end to end the first 7 bars of Figure II. These bars, as indicated previously, represent for each sex and for each of the first 7 days of disability after onset, the percentage contribution to the total days of disability (1933–1937) by all cause groups and by specific cause groups. In particular the figure reflects an important sex difference, namely, the higher frequency among the females of absences of short duration. Thus in the instance of the males nearly 45 per cent of the total days of disability are accounted for by the first 7 days while the corresponding percentage for the females is over 52. The largest differences of the percentages with respect to sex occur in order of decreasing magnitude on the first, second, and third days, respectively.

Annual number of days lost per person from onset of disability through the 21st day after onset, or during any selected interval within these end points—The cumulative number of days of disability per 1,000 persons (annual basis) for specific days after onset is shown in Table I by sex, and broad cause group. It will be observed that the annual frequency for all causes increases from 0.9 day per male on the first day to 7.5 days per male for the total period of 372 days; the corresponding rates for females are 1.8 and 10.9. During the first 7 days the annual frequency is 3.4 days per male and

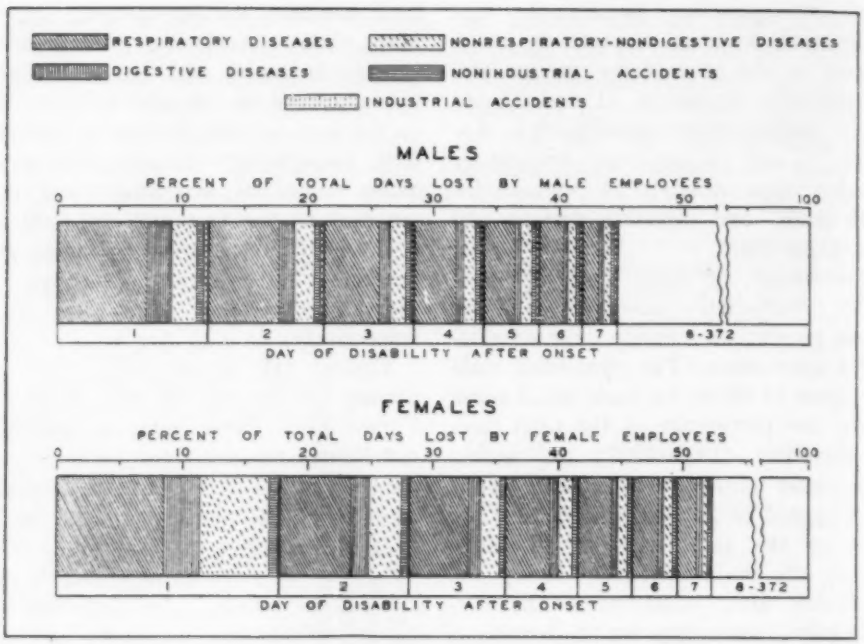


FIGURE III—Per cent of total days of disability (1933–1937) according to broad cause groups on specific days of disability after onset. (Bars for the first 7 days of Figure II placed end to end. The industrial accidents among the female employees are not shown.)

5.7 per female. These frequencies together with those for the different broad cause groups are shown graphically in Figure IV from onset of disability through the 21st day after onset; in Figure IV-A the frequencies corresponding to all causes and the different cause groups are compared for the males and females, respectively, while in IV-B the frequencies for the males and females are compared for all causes and each cause group, respectively. It will be observed in IV-A that the curves for the different cause groups are arranged in the same order regardless of sex, and that in IV-B, with the exception of industrial accidents, the curves for the females for each cause group lie above the corresponding ones for the males.

From Figure IV it is possible to determine approximately, and more precisely from Table I, for either sex and for all causes or for specific cause groups the annual number of days lost per person for any chosen interval of time within the first and 21st days after onset of disability. Thus if the interval is defined by the 8th and 12th days it is necessary only to find the difference between the appropriate cumulative frequencies shown for the 7th and 12th days, respectively.

Percentage of total days lost (1933–1937) from onset of disability through the 21st day after onset, or during any selected interval within these end points—Calculations based on figures recorded in Table I show that of the total number of 97,504 days lost by the males 39 per cent are accounted for by the respiratory diseases, 33 per cent by the nonrespiratory-nondigestive diseases, 13 per cent by the digestive diseases, 8 per cent by nonindustrial accidents, and 7 per cent by industrial accidents. The corresponding per-

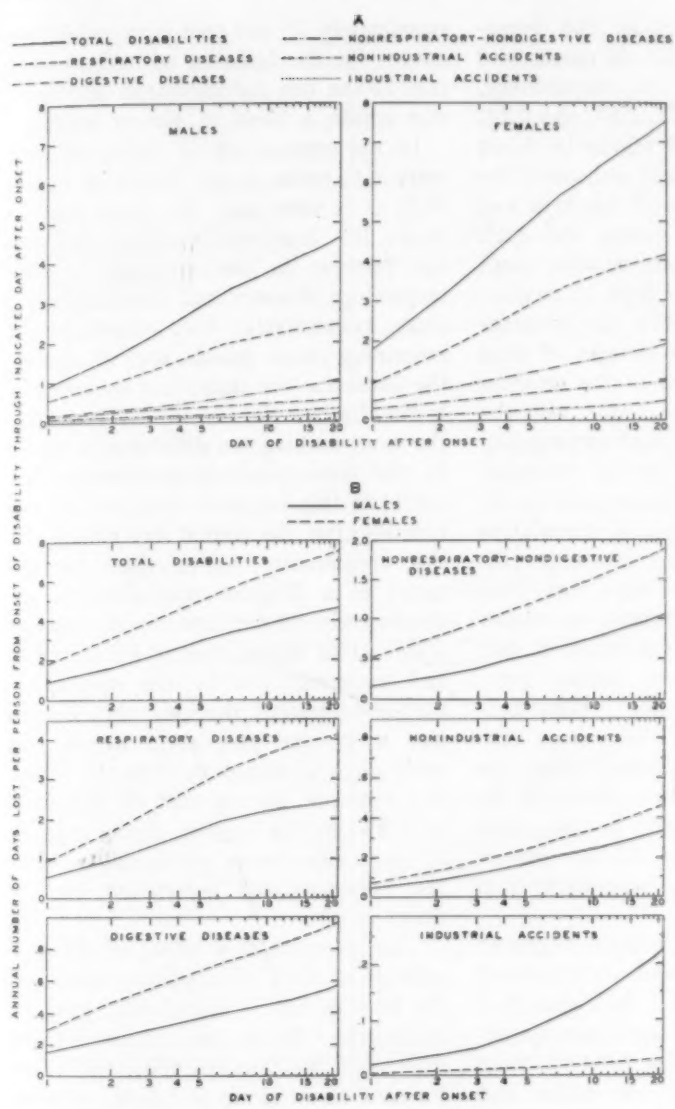


FIGURE IV — Annual number of days lost per person from onset of disability through the indicated day after onset, according to broad cause groups, employees of a public utility, 1933–1937. (Plotted from Table I after dividing the appropriate figures by 1,000. Logarithmic horizontal scale. Note changes in the vertical scale in passing from A to B.) A. Frequencies corresponding to all causes and the different cause groups compared for males and females, respectively. (The industrial accidents among the female employees are not shown.) B. Frequencies for males and females compared for all causes and each cause group, respectively.

centages for the females who lost a total of 35,518 days are, respectively, 49, 29, 14, 7, and 1.

The foregoing percentages are cumulative covering the first 372 days after onset of disability. Of interest are the cumulative percentages for specific days after onset of disability. By transforming the vertical scales of Figure IV-A for the males and females, respectively, these cumulative percentages will be shown graphically by the curves as drawn.* Thus 44.57 per cent of all days of disability among the males occurred during the first 7 days, the respiratory diseases, nonrespiratory-nondigestive diseases, nonindustrial accidents, and industrial accidents, respectively, accounting for 26.62, 8.44, 5.42, 2.72, and 1.37 per cent of all days

* One unit on the vertical scale for the males, Figure IV-A, is equivalent to 13.30 per cent; for the females, the equivalent is 9.21 per cent.

lost; among the females the corresponding percentages for all causes and specific cause groups are, respectively, 52.26, 30.33, 12.40, 6.72, 2.67, and 0.14. If the vertical scales of Figure IV-A are transformed as previously indicated, the cumulative percentages of all days lost may be read for all causes and each cause group for any interval after onset of disability within the first 21 days.

Thus far in this section the examination of cumulative percentages of days lost has been restricted to the universe of all days lost (1933–1937) and the days lost on account of each cause group were related to this specific universe. The remainder of the section will be devoted to an examination of cumulative percentages related to component universes representing all days lost from the respective cause groups, the object being to present sufficient material that will enable the reader to answer questions such as the following: What percentage of all days lost from the respiratory diseases occurred during the first 7 days after onset? What is the magnitude of the interval in days after onset that accounts for 50 per cent of the days lost from the respiratory diseases?

The cumulative percentages suggested are shown in Table I and are presented graphically in Figure V. In Figure V-A the cumulative percentages corresponding to all causes and the different cause groups are compared for males and females, respectively, while in Figure V-B the cumulative percentages for males and females are compared for all causes and each cause group, respectively.

It will be observed in Figure V-A that the cumulative percentage curves cross each other in some instances; it is not possible, therefore, to arrange the curves in any definite order. With respect to the males the curves rise, with the exception of the curve for respiratory diseases, within a band approximately 25 per cent wide, while the curves for the females, with the exception of the one for industrial accidents, rise within a band of similar width.

In the comparison of the sexes with respect to cause group, shown in Figure V-B, it is seen that the curve for the males lies consistently above that for the females in the instances of the respiratory diseases and industrial accidents, respectively; with respect to the remaining cause groups and all causes, the curve for the males lies consistently below that for the females. Apparently the most striking sex difference is shown by the nonrespiratory-nondigestive diseases; in this instance the curve for the females after the second day after onset lies consistently above that for the males at a distance equivalent to approximately 20 per cent on the vertical scale. This means that of all days lost and accounted for by the nonrespiratory-nondigestive diseases the females lost a greater proportion during the early days of disability than the males. For example, 60 per cent of such days were lost by the females during the first 21 days after onset of disability while the corresponding percentage for the males is 42.

The question now arises of the percentage of days of disability accounted for by the first 7 days after onset of disability. These percentages for the males and the females, respectively, are for each cause group as follows: respiratory diseases, 67 and 62; digestive diseases, 42 and 48; nonindustrial accidents, 33 and 36; nonrespiratory-nondigestive diseases, 26 and 44; and industrial accidents, 21 and 11. As stated previously the corresponding percentages for all causes are 45 for the males, and 52 for the females.

Another question of interest with respect to all causes and each cause group concerns the specific day of disability after onset on which the cumulative percentage of days lost attains the

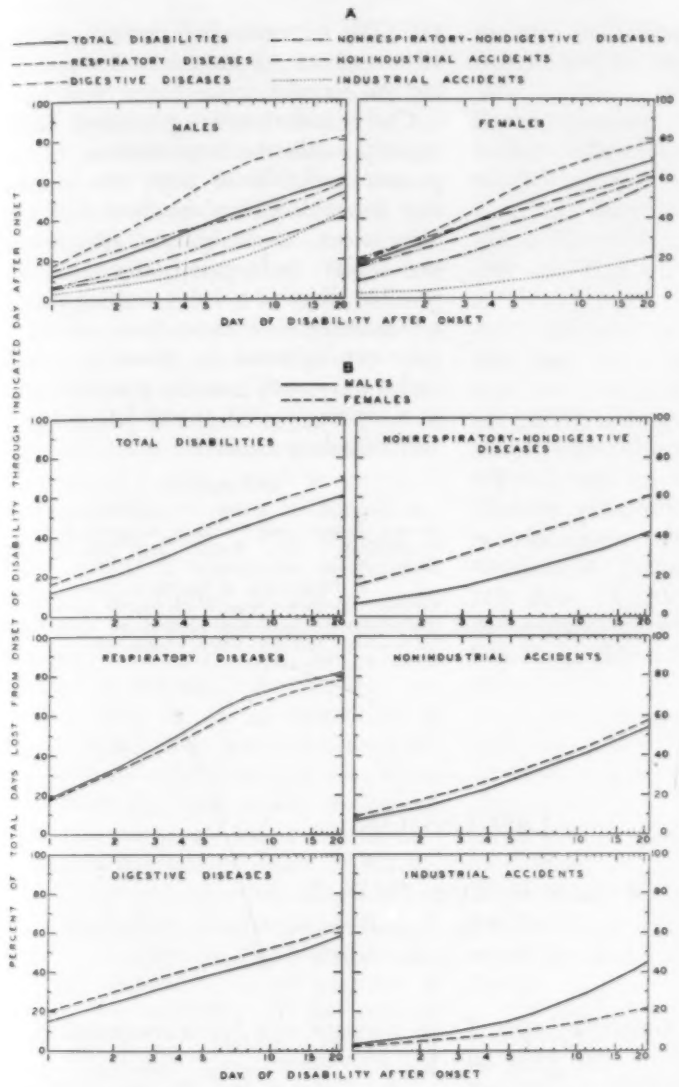


FIGURE V — Percentage of total days lost (1933–1937) from onset of disability through the indicated day after onset, according to broad cause groups, employees of a public utility, 1933–1937. Each broad cause group is considered a universe; thus in the instance of the respiratory diseases the male employees lost on the first day of disability 18 per cent of their total days of disability caused by the respiratory diseases. (Plotted directly from Table I. Logarithmic horizontal scale.) A. Percentages corresponding to all causes and the different cause groups compared for males and females, respectively. B. Percentages for males and females compared for all causes and each cause group, respectively.

value of approximately 50 per cent. This particular day for all causes is the 10th for males, and the 6th for females. The particular days for the specific cause groups for males and females, respectively, are: respiratory diseases, 4th day, both sexes; digestive diseases, 12th day and 8th day; nonindustrial accidents, 17th day and 15th day; nonrespiratory-nondigestive diseases, after the 21st day, and 11th day; and industrial accidents, both sexes after the 21st day.

SUMMARY

Reports on sickness and accidents causing disability lasting one calendar day or longer and ending during the 5 years, 1933–1937, among the employees of a public utility furnish the requisite data for the study of the relation of time lost from disabilities lasting less than 8 calendar days to the total time lost from all disabilities. This relation is important since the majority of sick benefit organizations subscribe to a 7 day waiting period and thus the

records of these organizations contain no information on cases of less than 8 calendar days' duration.

The 12,969 male person-years of membership in the benefit plan yielded 11,672 absences which accounted for 97,504 days of disability while the 3,272 female person-years yielded 5,956 absences which accounted for 35,518 days of disability.

Of the total days of disability from the respiratory diseases, 67 per cent among the males, and 62 per cent among the females, occurred during the first 7 days of disability after onset. The corresponding percentages for the males and females, respectively, for each of the remaining cause groups are as follows: digestive diseases, 42 and 48; nonindustrial accidents, 33 and 36; nonrespiratory-nondigestive diseases, 26 and 44; and industrial accidents, 21 and 11. The corresponding percentages for all causes are 45 for the males, and 52 for the females.

Charts and data are presented which make possible the determination of the percentage of total days lost during any interval within the first 3 weeks after onset of disability. Thus while the report deals principally with the possible effect of a 7 day waiting period on recorded lost time from disability sufficient material is presented which yields information on the possible effect of a waiting period of any length up to and including 21 days.

REFERENCES

1. Sayers, R. R., Kroeger, G., and Gafafer, W. M. General Aspects and Functions of the Sick Benefit Organization. *Pub. Health Rep.*, 52:1563–1580, 1937. (*Reprint No. 1874.*)

2. U. S. Department of Commerce, Bureau of the Census: *Fifteenth Census of the United States, 1930. Population, v. 5, General Report on Occupations.* Government Printing Office, Washington, D. C., 1933. Pp. 138–139.

DISCUSSION

RICHARD D. MUDD, PH.D., M.D.

Medical Director, Chevrolet-Grey Iron Foundry; and Chevrolet-Transmission, Divisions of General Motors Corporation, Saginaw, Mich.

IN discussing Dr. Gafafer's paper I could limit myself to one sentence. He has set up an excellent pattern for the representation of morbidity conditions of an industry and has made it possible to compare one industry with another in a uniform way. He has done more than this. He has shown us the relationship between the time lost during the first 7 days of disability and that after 7 days; the broad causes of this time lost and the important influence of sex on disabilities according to broad causes and length of disability.

I will limit myself to his statistics for males because the foundry group I wish to compare with his is composed of 94 per cent males.

Dr. Gafafer has by his statistical treatment of disability during the first 7 days, opened an entirely new and important field of industrial medicine in its relation to public health. He has demonstrated clearly that when we fail to keep a record of disabilities of 7 days or less we are missing 44 per cent or more of the days of disability in males due to sickness or injury in industry. How many would have realized that the days of disability occurring prior to the 8th day would have amounted to such a large percentage of total days of disa-

bility? When these days of disability prior to the 8th day are broken down into their broad causes the results are more significant. For example he has shown us that by the 4th day, 50 per cent of the days of disability due to respiratory diseases has occurred, and that by the 7th day 67 per cent of disabilities due to respiratory disease has occurred.

In connection with this disability during the early days of illness or accident a serious problem presents itself—the difficulty of recording disabilities of short duration. If an industrial plant is operating 5 days a week an employee can be disabled 2 days without losing any working time. The problem is more serious if the plant operates 4 days or less. I think the time has come when we in industrial medicine should disregard working time lost as a measure of industrial health. The important thing to us as custodians of industrial health is how many days are our patients—the industrial employees—disabled and how many disabilities have they per year. I do not have time to discuss the various means of solving this difficulty of detecting and recording these disabilities of short duration. I can only suggest that the ultimate solution may depend either on payment of benefits for disability of one day or more, as in Dr. Gafafer's group, or upon excellent coöperation of employees and the Industrial Medical Departments.

For several years I have been intensely interested in the problem of recording time lost by industrial workers from disabling sickness and accidents during the early days of disability. For 3 years we recorded on a special card every disability we knew of regardless of whether working time was lost or not. These cards were filed with the employees' records. In a rudimentary way we classified this time lost by departments. It was a good experience for our later efforts. For the past 2 years, however, in addition to recording all disabilities of any length, even 1 day or more, on an employee's examination card, we have been submitting all disabilities of 3 days or more to statistical study by occupational groups, for the industry as a whole and by cause. The recording of these short disabilities in the records of individual employees gives us important early clews to the employee's health and helps us to forestall longer and more serious disabilities, and thereby materially promotes public health. I will not take your time to explain the various means we have employed to discover these disabilities but, suffice it to say, that we have followed every lead. It has been a severe task, requiring a great deal of clerical help and attention to details. For those who find it difficult to record these disabilities it is suggested that every employee who loses one day or more from work or who is known to have been disabled, even if he lost no time, should be approved by the medical department. We have ceased to record days of disability after the 150th day, which suggests that our statistics for a certain month cannot be completed until 5 months after the last day of that month.

I thought it would show the importance of recording these early days of disability if I compared my results with those of Dr. Gafafer. Table I compares the experience of an iron foundry employing an average of 5,000 people 94 per cent of whom are men, with Dr. Gafafer's figures for *Men*. You will note that the number of disabilities and days lost per 1,000 employees from the 3rd to the 7th day inclusive in Dr. Gafafer's group is considerably in excess of that for the foundry. This excess of short disabilities and early days of disability demands an explanation. It can be explained in two ways: (1) that we have

TABLE I

Annual Number of Absences per 1,000 Employees

Days of Disability After Onset	*Grey Iron Foundry—94% Males*		*Public Utility (Dr. Gafafer's Figures)*	
	Daily	*Cumulative Days of Disability*	*Daily*	*Cumulative Days of Disability*
1st	?		900.0	900.0
2nd	?		695.3	1,595.3
3rd	376.6	1,129.8	543.2	2,138.5
4th	325.8	1,301.0	415.4	2,553.9
5th	283.0	1,426.0	329.4	2,883.3
6th	258.0	1,786.0	262.1	3,145.4
7th	198.0	1,912.0	205.6	3,351.0
150th		5,770.0	(To 372nd day)	
			2.2	7,518.2

Days Lost per M per Year—

Dr. Gafafer's Figures	7,518.2	(Public Utility)
Dr. Mudd's Figures (Omitting 1 & 2 day disability)	5,770.0	(Iron Foundry)
Unaccounted difference	1,748 days per 1,000 men or 8,741 days per 5,000 men	

Since this difference of 8,150 days can be accounted for in most part by the failure to include 1 and 2 day disabilities in the statistics, it is quite fair to distribute them in the same way as are the 3 day disabilities, namely:

Respiratory (inc. N. & T.)	53% or 4,633	days per year
Gastrointestinal	9% or 787	" " "
Non-Industrial Accidents	3% or 262	" " "
Industrial Accidents	0% or 0	" " "
Non-Resp. Non-Digestive	35% or 3,059	" " "

not kept a record of disabilities of 2 days or less, and (2) our method of discovering disabilities of 3 to 7 days in length have been faulty due to the uneven and sometimes short work week. Also when employees discover that their disabilities are being recorded they occasionally give a false reason for their absence. You will note that the unaccounted difference in days lost per 1,000 per year is 1,748, which closely approximates the 1,595.3 days per 1,000 which Dr. Gafafer found that his group lost during the first 2 days of disability. We thought we were doing a good job but this comparison suggests that our failure to record disabilities of 2 days or less means a statistical loss of at least 23 per cent of the total days lost by industrial workers. It may be that this 23 per cent will prove to be of vast importance in determining the healthiness or otherwise of an industry. In this group of 5,000 foundry employees, the failure to keep records of disabilities of 2 days or less, when compared with Dr. Gafafer's group, means that 8,741 days per year at least are unrecorded. I will show that this figure is probably greater. When this is broken down into broad causative groups of respiratory, gastrointestinal, non-respiratory, non-digestive and accidents, the results are more significant. If in a foundry where the study of respiratory diseases is so important we are failing to record 4,633 days of disability per year due to respiratory diseases occurring in a group of 5,000 it would seem to be a serious statistical loss. It may be important to determine where in the foundry these 4,633 days of disability were distributed.

So far I have assumed that foundry

work is as healthful as in a public utility, and that we have been able to record most disabilities of 3 to 7 days' duration. But if we assume that there is a proportion between the number of disabilities lasting more than 7 days and those lasting 7 days or less, then we would have to revise our figures. If we are fair in making this assumption, then the 195 disabilities per 1,000 of 3 to 7 days in length occurring in our foundry would become 462 per 1,000 to correspond with Dr. Gafafer's findings of 390.1 per 1,000 disabilities of 3 to 7 days in length, and 153.1 per 1,000 of 8 days or more. Carrying this analogy further it is found that we should expect 419 disabilities per 1,000 (2,095 disabilities among 5,000 men) lasting 2 days or less in our foundry, and if this all be true the importance of recording these short disabilities is all the more evident since our estimated difference of 8,741 days lost per 5,000 men per year during the first 2 days of disability becomes an estimated 9,803 days per year which we have failed to record by not listing disabilities of 2 days or less.

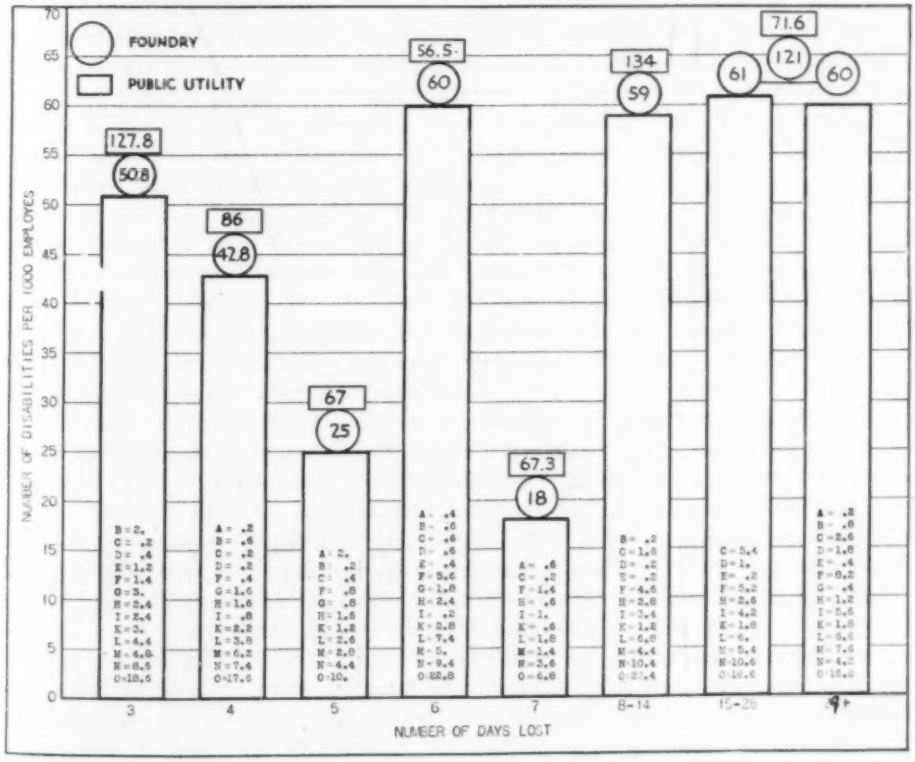
Table II is shown to display in more

TABLE II

NUMBER OF ABSENCES PER THOUSAND EMPLOYES BY LENGTH OF DISABILITY AND CAUSE

A=Ind. Acc. B=Heat & Cold C=Contagious Diseases D=Cardio Vascular E=Cerebro Spinal F=Accidents - Non-industrial G=Dental H=Skin I=Genito Urinary K=Miscellaneous L=Joints M=G.I. N=E.E.N.&T. O=Respiratory (Results if not noted are zero)

		PER M.
TOTAL NUMBER OF DISABILITIES	1877	377
NUMBER LOSING 7 DAYS OR LESS (1 and 2 day disabilities not counted)	986	193
NUMBER LOSING 8 DAYS OR MORE	891	178



graphic form the difficulties encountered in recording short term disabilities where there is neither incentive nor necessity for employees to report them exactly. You saw that Dr. Gafafer's curve of the annual number of absences per 1,000 persons is more or less definitely parabolic whereas the curve for our industry where a real effort has been made to record all disabilities of 3 days or more is found to be absolutely irregular. This is best seen in the unexpected drops in the number of 5 and 7 day disabilities. This might be explained by the tendency on the part of employees to consider a week to be 6 days, omitting Sunday, or where the work week was 4 days to consider oneself to be disabled 4 days instead of 5. And so without an adequate incentive such as payment of benefits for every day of disability it would seem impossible to arrive at an accurate figure of the days lost per 1,000 per year, during the early periods of disabilities. In this table for sake of completeness I have included under each group of disabilities the various causes of these disabilities. Dr. Gafafer's group lost 7½ days per man per year, whereas our foundry group is charged with but 5.8 days per man per year and we thought we had recorded most disabilities of 3 days or more. No one figure can more adequately express the need of recording those earliest days of disability and particularly the first and second days.

Dr. Gafafer has thrown open the doors to a field of industrial medical research which may prove of vast importance in the determination of industrial health. Years of study of this problem will be necessary before the answers to many questions which now present themselves can be obtained.

Vol. 29

American Journal of Public Health
and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 29 April, 1939 Number 4

MAZÝCK P. RAVENEL, M.D., *Editor* AUGUSTA JAY, *Editorial Associate*
REGINALD M. ATWATER, M.D., *Managing Editor*

Editorial Board
THE MANAGING EDITOR, *Chairman*
PROF. IRA V. HISCOCK
KENNETH F. MAXCY, M.D.
ARTHUR P. MILLER, C.E.
HARRY S. MUSTARD, M.D.

THE ORAL HEALTH GROUP

ANNOUNCEMENT was made in the *Journal* shortly after the meeting of the Association in New York in 1937 regarding the formation within the Association of the Oral Health Group. This informal association had among its objectives the fostering of an interest in dental matters throughout the various Sections. The first year's activities of this group culminated in the appearance of several notable papers on dental problems at Kansas City, a successful Oral Health luncheon, and the presentation of a symposium on "How to Improve Dental Health in the United States," jointly sponsored by the Public Health Education and the Child Hygiene Sections.

Three of the papers read in the symposium appear in this issue. They present points of view which should engage the attention of all who come in contact, as what public worker does not, with dental disease in any of its various manifestations. When one considers the undoubted deleterious influence of dental infection on general health, the progressive nature of dental disease when neglected, and its practically universal incidence, it is only natural that this subject should receive increased attention.

Professor Turner's paper outlines an effective approach to the community dental program through health education. Dr. Cady gives major consideration to the dental service problem. Dean Millberry's paper makes a direct approach to the economic problem involved in providing dental care and deals with two of the outstanding items contributing to the cost of dental service, the cost of dental equipment and the cost of dental education. Believing that dental equipment, practicable at least for children's dental care, can be manufactured through mass production methods at much less than current prices, he proposes also the reduction of cost of dental education through a curtailed course of instruction designed to prepare dental practitioners trained to give preventive and corrective dental care to children only, under the jurisdiction of the health department or board of education. The course would consist of two years of

predental college work and two years of training in the dental school. This is a somewhat revolutionary concept and demands careful consideration, especially as it has not had a hearing before either the American Dental Association or the American Association of Dental Schools.

Dean Millberry's plan was based on a program proposed by him at the University of California in 1925, adopted by the Academic Senate, and approved by the Board of Regents. Basically, it provided for the education of persons who would pursue professional studies for four years after completing high school, at which time a Bachelor of Science in Dentistry would be awarded. Millberry believes that such persons would be qualified to perform the simpler types of dental operations which constitute about 80 per cent of the practice of the average dentist. Some of these students might go on with further studies to be recognized with higher degrees. When proposed in California, dentists who felt that the Doctor's degree in Dentistry was a requisite for practice protested violently, and the plan was abandoned.

Dean Millberry calls attention to the fact that in New Zealand a similar type of training has been given to young women after two years of dental training only, with no prerequisite college work, and who serve the children in the public schools. He claims that even with this shorter period of study the program is successful and that it is so regarded by the dentists in New Zealand.

The dentist members at Kansas City took issue with Dean Millberry's proposal, believing that dental disease in American children is becoming more complex in its manifestations and that, in consequence, operators could not be trained in two years in the dental school to cope with the diagnostic and operative problems involved. Attention was also called to the dangers under such a plan of illegal practice by those licensed to practise in a restricted field. Altogether, they felt that it would be quite unacceptable to the American Dental Association and to dentists generally throughout the country.

There can be no doubt that the cost of dental treatment is high and that the funds for providing it on a community basis are all too small. Any relief, such as that offered by Millberry, will seem welcome to public health administrators, most of whom have little knowledge of the technical problems involved. Over against this group will be the mass of dentists who will probably prejudge this proposal on its departure from the *status quo* without inquiry into its possibilities. Without taking a stand for or against the Millberry plan, it at least seems proper to suggest its consideration by a group of dentists thoroughly familiar with the problems involved in giving dental care to American children. A critical evaluation of the New Zealand method seems desirable also, particularly with regard to its applicability to North America.

An important consideration is the ultimate effect which such a project would have on the standards of dental practice. Would it be in the public interest to endorse a scheme which would make dental or medical practice less attractive to our best qualified men and women and thus bring into the professions a group having inferior qualifications?

There is a more fundamental need than that which Dean Millberry's plan is intended to meet, namely, the need for reducing dental disease which is so much on the increase and which even now calls for so vast an amount of treatment services. Even the savings which are envisioned in the Millberry plan would hardly make possible the control of all the dental caries known to

exist in the mouths of the nation's children. Even more than the financial relief which Dean Millberry would afford us, we need a broad and inclusive research to determine how dental decay can be prevented and a dental health education program which will put the findings of that research to work. These aims would seem readily attainable and thoroughly practical, and should be effectuated as early as possible in order that the nation may promptly benefit from the services now enjoyed only by the few.

PROFESSIONAL LEADERSHIP IN THE SCHOOL HEALTH PROGRAM

THERE can be no doubt that school health programs are ready to share in the expansion that is now affecting all public health enterprises. It has been said that leaders arise in response to needs. Where shall we find the leadership to advance this important phase of health work? How can the American Public Health Association assist in its development?

Competent professional leaders, capable of investing school health work with a sound philosophy and of giving it practical direction, are not wanting in the American Public Health Association but they are scattered through many of the Association's Sections. This is only natural because a variety of special interests is inherent in school health programs. What Association facility can implement the needed leadership?

It was with such questions in mind that representatives of the American School Health Association met with the Section Council of the Child Hygiene Section of the A.P.H.A. at the Kansas City Meeting, and proposed that the two associations join hands in an effort to mobilize their findings for the guidance of those in school health work.

Members of the Child Hygiene Section recognize that the scientific sessions in which the American School Health Association has participated have already served to unite many special groups in the interest of better school health programs. The Child Hygiene Section has a continuing concern with the child of school age, but accepts the American School Health Association as an agency specially focused on school health program policies, procedures and organization.

Believing that we should achieve some formal recognition of an informal relationship that has extended now over twelve years, a movement is under way which will place the American School Health Association in the position of an associated organization of the American Public Health Association. Such a plan has been approved in principle by the Committee on Constitution and By-laws of the A.P.H.A., and the Executive Board has authorized that this suggestion be brought to the attention of the Governing Council of the next Annual Meeting in the belief that some such recognition should be approved.

The key to the solution of school health problems lies in teamwork between the professions of education and public health. On the side of the educator developments have been rapid since June, 1937, when the American Association for Health, Physical Education and Recreation was organized as a department of the National Education Association. In November, 1938, a conference was held in New York City which was attended by many agencies with interests in the health education approach through the schools, and the A.P.H.A. has

accepted membership on the Board which will undertake the coördination of these programs between health and educational groups. Professor Ira V. Hiscock of the Yale Medical School has been designated as the Association representative.

Confidence in the belief that a good foundation has been laid for coöperative understanding in this field, and that special interests must give way to coöperative action, the future of these relationships seems encouragingly clear.

LIABILITY FOR WATER-BORNE DISEASE

IT is now a well established principle of law that a purveyor of water for human consumption, whether a private water company or a municipal corporation, will be liable for damages to consumers who contract diseases from the water as a direct result of ngeligence on the part of the purveyor.[1] While not an insurer or guarantor of the purity and potability of the water, a municipal or private corporation has the duty of ascertaining the quality of its water supply, and it must take all necessary precautions to safeguard the health and welfare of those who use the water. Failure to discharge this responsibility creates a legal wrong.

In view of the numerous outbreaks of water-borne disease that have occurred in this country and abroad, and in view of the many court decisions upholding awards of substantial money damages to persons injured by contaminated water, this legal doctrine ought to be familiar to all water works officials. Too many public and private vendors of domestic water supplies seem unable, however, to learn the bitter lesson of experience.

In 1878, for example, there occurred at Caterham and Redhill in England an epidemic of typhoid fever, caused by pollution of a public well by a workman who was a carrier of typhoid fever.[2] Here was a salutary lesson, and yet 60 years later history repeated itself.

Late in 1937 and in 1938 Croydon, England, was visited by a disastrous epidemic of typhoid fever, upon which we commented editorially last May.[3] According to more recent reports in British medical publications,[4] this preventable outbreak was responsible for 322 primary and 19 secondary cases of typhoid, with 43 deaths. This unnecessary slaughter was due to contamination of a public well by a workman who was a typhoid carrier.

Since the corporation had negligently omitted the customary filtration and chlorination of the water supply while the workmen were engaged in their operations, this London suburb is reported as now being confronted with claims for damages for this epidemic amounting to more than £100,000, or nearly half a million dollars. Carelessness in community health protection apparently does not pay.

In a lawsuit brought against the corporation by a father whose daughter suffered a dangerous illness in this outbreak, an award of £400 damages is said to have been made by the English High Court. The corporation, apparently realizing the hopelessness of reversing this decision, is reported as having decided not to appeal.

The court made its adjudication mainly on the matter of negligence. Since the father and not the daughter had a contractual relationship with the corporation under existing statutes, there was no breach of warranty in the case of

the daughter. There was, however, the right of redress at common law for negligence, and this was adequate to justify the award upon proof of the fault of the corporation.

The American courts have taken the same position in a long line of decisions.[5] In 1928, for instance, an award of $2,000 to a minor and $1,000 to his father was sustained by the highest court in New York in a case where typhoid fever had been contracted from a city water supply which had been contaminated by sewage from an old canal.[6]

Despite unfortunate experiences such as this, an epidemic of water-borne typhoid occurred in Olean, N. Y., in 1928, and resulted in the payment of claims by the city amounting to more than $400,000.[7] We repeat that negligence in performing an important public health duty, such as the maintenance of the purity of a domestic water supply, is a costly mistake.

Sanitarians, municipal authorities, and water works officials should take keen cognizance of their legal responsibilities, and should carefully consider the legal liabilities of public and private corporations in performing such proprietary functions as dispensing water and disposing of sewage. Prevention of disease in such instances not only is a necessary humanitarian duty, but it is an economic safeguard of vast significance. The maxim that ignorance of the law is no excuse is not yet obsolete.

REFERENCES

1. Tobey, J. A. *Public Health Law.* 2nd ed. The Commonwealth Fund, New York, 1939 (in press).
2. Stallybrass, C. O. *The Principles of Epidemiology.* Macmillan, 1931, p. 353.
3. *A.J.P.H.*, 28:644 (May), 1938.
4. Liability of a Sanitary Authority. *Lancet*, Dec. 10, 1938, p. 1366.
The Croydon Test Case. *Pub. Health*, 52:95 (Jan.), 1939.
5. Tobey, J. A., *op. cit.*
6. Wiesner v. City of Albany (1928), 229 N.Y.S. 622, 224 App. Div. 239, affirm. in 250 N.Y. 551, 166 N.E. 320.
7. *A.J.P.H.*, 21:390 (Apr.), 1931.

EDUCATING FUTURE ENGINEERS

IN a recent issue of the *Public Health Reports*, there appeared an article summarizing the results of a study of 4 year undergraduate college courses available during the academic year of 1936–1937 for students wishing to follow sanitary engineering work or engage in public health engineering activities. Under six main divisions and fifty sub-divisions, the curricula of twenty-six courses in sanitary or public health engineering were broken down so as to show the per cent of time allotted to the subject matter described by the sub-division titles. Two of the main divisions were sanitary engineering and public health. Some of the material in this article merits more analysis than was given to it, even though such a study results only in the statement of certain questions for which answers are not immediately forthcoming.

Using sanitary engineering and public health subjects as a yardstick, the figures in one table show that the percentage of time allotted to these two broad classifications range from 24.8 to 4.6 of the total, and, if the highest figure is excluded as not being entirely comparable to the others because it pertains to a course definitely designed for public health engineering training, the range is from 20.4 to 4.6. The average time-allotted figure for these lower twenty-five

courses is 11.3 and fifteen courses are found to devote lesser amounts of time to the two subjects under consideration than this average. In the case of two colleges, their courses include less time on these important subjects than is devoted to the same studies—on the average—by forty-five colleges which make no pretense of offering training for work in this field. If a generous allowance is made for differences of opinion as to what should be included in such courses, it would seem that this spread in the time-allotted figures is too great and that some of the courses are not providing the material to the students which the future field of activity demands.

Is there need for a sharper line of demarcation between training courses for the undergraduate sanitary engineer—the designer, builder, seller, and operator of sanitary works—and the public health engineer—the designer, builder and seller of public health engineering? If so, there is likewise need for more and better educational opportunities for those wishing to confine their life work to the public service of health improvement and protection. On the other hand, should the engineer first be trained in basic engineering knowledge and then have superimposed on that additional work emphasizing public health as a specialty? Neither of these questions can be answered today, but if both sanitary and public health engineering graduates are to go into the field of public service after only 4 years of undergraduate work, there is need for many curricula to be recast in the light of the present scope of environmental sanitation work.

PUBLIC HEALTH EDUCATION*

How to Write Badly—By Our Own Cliché Expert. "Being in a cynical mood this afternoon," writes our Cliché Expert from Boston, "I have to disgorge myself of something that has been eating at my vitals for some time."

A hurried review of the season's morbidity reports should be termed "an intensive epidemiologic study."

Any health project that is undertaken in three or more communities becomes known as "a nation-wide campaign"; or, a-la-Kipling, "far flung."

If some prominent people are met in the day's work, be sure to report that "the key people were contacted"—thus killing two (cliché) birds with one stone, if we may coin a phrase here.

A brief publicity project may be cursed effectively by having it designated a "drive" or better an "intensive educational campaign."

If a committee is asked to meet, do not fail to extoll the virtues of "group thinking": it makes for clarity when a verb is tortured to create a doubtful noun.

When the help of others is needed, it must be emphasized that nothing short of "100% coöperation will do." Another convincing expression is "about 75%," for the symbol of an exact determination qualified by an approximation becomes pleasantly obscure.

No scientific paper is complete without some reference to the "average man," or "normal health," however meaningless the expressions may prove.

Scientific jargon impresses the lay reader even if he does not understand it, so use "optional nutritional status," "case fatality rates," or "upper respiratory infection," whenever simpler terms would do.

Who Wrote This Letter?—Many letters leave a bad taste because the signature is hard to read. You may have noted a new style in business letters, which has been urged by *The Reporter*, 17 E. 42nd St., New York, N. Y. In place of the double set of initials at the lower left corner of the letter, the full name of the dictator appears, such as,

Henry E. Smith:MBS

Others who wish to increase signature readability and acceptability may well take up the long accepted but not always used fashion, having the full name typewritten below the pen written signature.

Anyway let's take the puzzle out of the signature.

Why Not Two Copies?—A subscriber to *The Reporter*, direct mail advertising journal, wishes that the magazine was printed on one side of the page for clipping and filing.

A better plan would be to subscribe for two copies. Files of magazines have serious limitations for reference use. Two copies of the *Journal* would enable a health agency to cut freely and file articles which would make up a splendid reference collection.

Add two copies of *Hygeia* for popular material, and the health educator would have an unexcelled reference library.

March of Health Broadcasts in Illinois—From Radio Speaker Leona de Mare East, Illinois Department of Public Health, we have this helpful outline of procedure:

The topics of the weekly broadcasts are selected from 13 to 26 weeks in advance by the Division of Public Health Instruction. The educational material is interwoven into as dramatic a 15-minute radio play as possible by the staff radio speaker. Each play is

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22nd St., New York, N. Y.

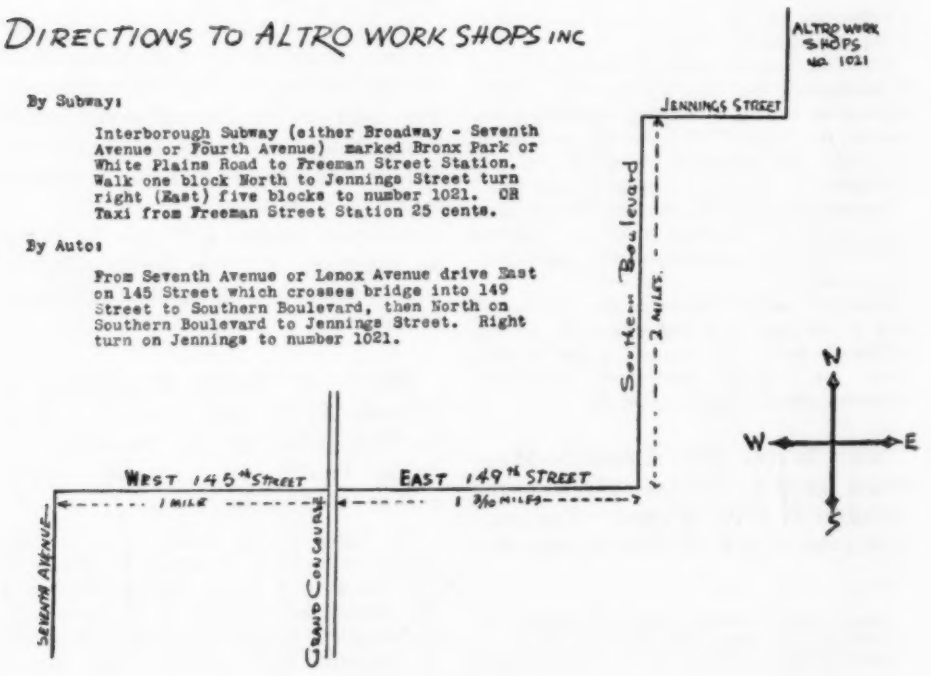
approved in the Instruction Division and mimeographed. Before being produced it is checked by staff physicians, nurses, engineers, or bacteriologists, according to the field in which the subject falls. The aim is to present accurate and stimulating health information in a form that has enough listener-interest to compete with commercial radio shows. Actors with professional experience are recruited both from the department's staff and from local dramatic groups. The electrical recordings are produced in a commercial studio under the direction of the author. From the original master transcription 18 copies are made for shipment to the 18 coöperating radio stations. This gives the Department a total of 4½ hours of air time a week, covering the rural as well as the urban areas of the state. A gratifying response has followed the occasional offers of health pamphlets on these broadcasts.

The station schedule appeared in *Illinois Health Messenger*, Springfield, for Dec. 1, 1938. Miss East will supply copies of the broadcasts, and will welcome suggestions or criticisms.

Making It Easy for Visitors—The Altro Workshops, conducted by the Committee for Care of Jewish Tuberculous, 71 West 47th Street, New York, N. Y., is located in a faraway spot unfamiliar to most of those who would attend even a 25th anniversary. So with the invitations was enclosed a slip 3½ x 5½ inches which is reproduced on this page. Probably other agencies have used a simple map to encourage visitors, for a special occasion or throughout the year. A few social agencies use interesting picture maps.

"Make a Note of It"—This title of a plea for note-taking is developed in *Rotarian*, 35 E. Wacker Drive, Chicago, Ill. Jan., 1939. *25 cents.*

It tells why we should make more of an effort to tie down fugitive thoughts and observations, what we read and


DIRECTIONS TO ALTRO WORK SHOPS INC
ALTRO WORK SHOPS NO. 1021
By Subway:
Interborough Subway (either Broadway - Seventh Avenue or Fourth Avenue) marked Bronx Park or White Plains Road to Freeman Street Station. Walk one block North to Jennings Street turn right (East) five blocks to number 1021. OR Taxi from Freeman Street Station 25 cents.
By Auto:
From Seventh Avenue or Lenox Avenue drive East on 145 Street which crosses bridge into 149 Street to Southern Boulevard, then North on Southern Boulevard to Jennings Street. Right turn on Jennings to number 1021.
JENNINGS STREET
SOUTHERN BOULEVARD
2 MILES
N
W
E
S
WEST 145TH STREET
EAST 149TH STREET
1 MILE
1 3/10 MILES
SEVENTH AVENUE
GRAND CONCOURSE

what we see. Darwin, Edwards, Stevenson, and others testify.

One application:

Try keeping a pad handy to record unusual or half-forgotten words you meet during the course of the day—not necessarily big or out-of-the-way words, but words that strike you as having tang in some connection. It is a simple matter to run over the list at night, and with a decent filing system it is possible not merely to enlarge your vocabulary, but also to add considerably to the interest of your talk and thinking.

A Safety Education Workshop—Ben W. Miller, Director of Driver Research, Indiana University, Bloomington, reports on a Safety Education Workshop in the Student Building:

This Safety Education Workshop was set up in early spring to accommodate our undergraduate and graduate students who are enrolled in Health and Physical Education courses. In it, we had more than 600 different pieces of materials on display, and available for use were twenty 3½ x 12 tables. We had posters on all phases of health and safety on display, and also displayed anatomical charts and models, and other teaching materials, such as the marihuana weed and testing devices. Our materials in Safety Education were grouped according to 4 major headings: Recreational; Transportational; Occupational; and Home and School. This Workshop was used for our elementary teacher training group, our major students in Health and Physical Education, and for all of our graduate students, including special seminars in health and safety. It proved to be quite a popular gathering place for students, and it met with such success that we have asked for special appropriations in our budget to add to the facilities and materials we already have. Another feature of the past summer was the use of this Workshop by the 90 recruits who were being trained by the Indiana State Police. They completed special requirements in the classroom as well as on the road in traffic safety.

Publication by Microfilm—A new medium for the distribution of scientific material is made practicable through University Microfilms, 313 N. 1st St., Ann Arbor, Mich.

Briefly a monograph or dissertation will be photographed from typewritten manuscript on microfilm. Prints will be supplied at 1¼ cents a page. Reading machines are now available in many universities and elsewhere, and low cost machines are near at hand. The service is available to those possessing a doctorate degree or those having a doctorate dissertation for publication. Those interested will receive much additional information upon request.

Wholesale Discussion in Pittsburgh—In October, 1938, the National Recreation Congress (315 4th Ave., New York, N. Y.) included 5 simultaneous discussion groups every afternoon.

Long in advance a 22 page pamphlet, "Topics for Group Discussion," was distributed to the expected delegates.

This pamphlet was made up of 24 sets of questions, one set for each of the discussion periods. We quote the questions under "The Interpretation—A Clinic on Written Reports":

1. What are the criteria by which a report should be judged? (i.e. What makes a report "good"?)
   (a) What are the physical features that need to be considered, size, paper, etc.?
   (b) How does the date of publication affect its value?
   (c) What are the major topics to be considered?
   (d) How does the length of a report affect its best use?
   (e) What statistical material should go in and in what form?
   (f) How can illustrative material be best used? etc., etc.
2. For what constituency is an annual report prepared? How far can it be used to interpret recreation to the public? To what extent does the constituency affect the form and content of the report?
3. How can the annual report data be best related to data of previous years to interpret trends and growth, and how can they be used to forecast future progress?
4. What determines the number of reports to be prepared? How plan for the wisest distribution of reports?
5. What methods have been used to have newspapers use report material affectively?

6. Through what other agencies can the factual material be released to the public in attractive form?
7. What would be the values of establishing national standards for reporting recreation? If desirable, how should it be done?
8. What effect does the popularity of picture magazines have on reporting with photos rather than words?

To make sure that every delegate had an opportunity to present what was on his mind a session on the closing day was devoted to a "Pet Show—A Free for All Exchange of New and Pet Ideas."

Here is a chance for anyone to speak on any topic bearing on any phase of recreation. Parade your pet idea for the benefit of others. Receive new ideas yourself. Speak frankly—state it briefly.

What new ideas have you developed?

What original experiments have been made in your city? With what success?

In what part of your program do you take greatest pride?

If you had unlimited funds, what are the first three things you would do to serve the recreation needs of your city?

What seemingly desirable steps have you tried without success?

This use of discussion was not experimental. For years the National Recreation Congress has been notable for giving considerable time to open discussion. Thus a wealth of practical experience has been made accessible to all. Moreover, careless thinking and half-baked ideas have been brought out into the open.

May there be generous time allotment for discussion when the A.P.H.A. meets in Pittsburgh in 1939.

NEW

Our Children's Health, mimeographed bulletin of 22 pages, issued by Division of Public Health Training, New York City Department of Health. For school physicians and nurses.

TO HELP OR BE HELPED

The Health League of Canada (105 Bond St., Toronto) wants a slogan. To start your thinking, here are samples:

"Health for all is wealth for all" . . . "Health for all and all for health" . . . "Happy he who holds his health" . . . "Put on the armor of health."

"There's Nothing Wrong With Your Mind!" That is, if "you can't make it work" and make it "stick to the subject," according to H. D. Kitson, Ph.D. For the normal minded who don't think enough or think hard enough. *American Journal of Nursing*, 50 W. 50th St., New York, N. Y. Feb., 1939. *35 cents.*

MIMEOGRAPH OR PRINT

If you wish to consider a variety of folds in a novel announcement or invitation . . . or if you are interested in the pleasing effects of a white paper with one side tinted . . . ask Appleton Coated Paper Co., Appleton, Wis., to send portfolio of samples of "dull-chrome" paper, and tell you where to buy it.

Ready-made illustrations for inserting, as is, and quite simply, in the stencil which has been typewritten with space left for the illustration, are provided by Milo Harding Co., 613 Commonwealth Annex, Pittsburgh, Pa. An instruction sheet, and proof sheets at intervals, will be sent upon request. You order the sheet you want, and when you want it. This service makes it possible to use timely illustrations in any bulletin or other mimeographed job. If you don't fully understand the idea, please write the Editor.

MOTION PICTURES

The National Tuberculosis Association has recently released "On the Firing Line." In sound on 16mm. and 35mm.

Accompanied by crisp, running narrative, the film takes the audience to various points of interest including Trudeau Sanatorium, Waverly Hills Sanatorium, the bayou country in Louisiana, the University of Minne-

sota, and the southwest. There are scenes showing the public health nurse on her rounds, the research laboratory, industrial workers, Negroes, and so on. Animated isotype graphs (picture diagrams produced by Dr. Neurath) present the statistical facts.

MAGAZINE ARTICLES

"Sulfanilamide," by J. Pfeiffer. *Harpers*, 49 E. 33rd St., New York, N. Y. March, 1939. *40 cents*. "The story of a great discovery."

"Sleep and Insomnia," by G. W. Gray. *Harpers*. Nov., 1938. First of a new series of medical articles.

DATES AHEAD

Early Diagnosis Campaign, April 1–30. See any tuberculosis association.

Silver Anniversary Observance of National Negro Health Week, April 1–30, 1939. Address: National Negro Health Week Committee, U. S. Public Health Service, Washington, D. C. The "Week" is April 2–9, but the Anniversary will extend through all of April. Ask for samples of history and plan bulletin, poster, and school poster, and information about the poster contest and the awards for successful local observance of the event.

"Boys and Girls Week," April 29–May 6, includes "Health Day," May 1. Address: National Boys and Girls Week Committee, Room 950, 35 E. Wacker Drive, Chicago, Ill.

"May Day—Child Health Day," May 1. Slogan: "The Health of the child is the power of the nation." Address: U. S. Children's Bureau, or your own State Committee. Children's Bureau has issued a new May Day poster, 30 x 34 inches. *20 cents*. Quantity discounts. Order from Superintendent of Documents, Washington, D. C. Write the Bureau for new series of May Day leaflets.

"National Hospital Day," May 12, 1939. Address: Albert G. Hahn, Chairman, National Hospital Day, Deaconess Hospital, Evansville, Ind. Also, Physicians' Record Co., 161 W. Harrison St., Chicago, Ill. See plans for the day under "Public Education" in "Hospital Organization and Management," by Dr. M. T. MacEachern.

Both the San Francisco and New York expositions have announced May 12 as "Hospital Day."

Annual Meeting of National Tuberculosis Assn., Boston, June 26–29, will include health education topics.

Interpreting Modern Methods of Tuberculosis Control to the Public . . . Negro Health Education . . . Tools of Health Education (including printed word, visual education, spoken word) . . . Junior High School Health Education . . . Public Relations (in National Conference of Tuberculosis Secretaries).

BOOKS AND REPORTS

Books of Special Interest to Public Health Workers

MAZŸCK P. RAVENEL, M.D.

"Of making many books there is no end; and much study is a weariness of the flesh." So saith The Preacher, so we are here making an attempt to lighten the burden of our readers in this respect.

An interesting function of the Editorial Office is the examination of new books and a report of them to our readers. We limit our published reviews almost entirely to those which are devoted to the consideration of matters treating directly of any of the various concerns of public health and personal hygiene, though a considerable number of other books are gone over.

It has seemed helpful at the end of each year to scan the reviews published in our own *Journal* as well as a number of others, and select from them those which we believe to have special interest and usefulness to the constantly increasing numbers engaging in the many fields of public health who do not have access to the large number of new publications, copies of which the publishers are courteous enough to furnish to us.

As has been our custom in the past, we depend most on the reviews in our own *Journal,* but consult a number of others, chiefly the *Journal of the American Medical Association,* the *British Medical Journal,* and *The Lancet.* The brief opinions expressed are taken from the original reviews, often in the exact words, though quotation marks are not used.

Publishers have shown as much interest in our endeavor as our readers have, and to them we express our appreciation of their liberality and courtesy.

This year we include only books of which the reviews have appeared during the nine months of 1938, May to December, inclusive.

CHILD HYGIENE

As usual, for a number of years past child hygiene has received a great deal of attention, but again, while there have been a number of articles, not many books on the subject have come to hand. *The Compleat Pediatrician: Practical, Diagnostic, Therapeutic and Preventive Pediatrics,* by Wilbur C. Davidson, Duke University Press, 2nd rewritten edition, is a valuable compendium of pediatric materials prepared as a ready reference for practitioners of medicine especially interested in pediatrics. *Modern Ways With Babies,* by Elizabeth B. Hurlock, Lippincott, is readable and comprehensive and is an excellent common sense aid to the intelligent mother.

HEALTH EDUCATION

There is growing interest in the matter of health education, especially in the early years. In addition to various reports and discussions, the following books seem to be of especial interest: *How To Be a Convincing Talker,* 2 vols., by J. George Frederick, Business Bourse, is recommended by the reviewer as "usable by many *Journal* readers." It is a valuable exposition of the im-

portance of good language and of public speaking. *Integration, Its Meaning and Application,* by L. Thomas Hopkins and others, Appleton-Century, is an excellent and interesting volume for those engaged in health education.

HISTORY AND AUTOBIOGRAPHY

There is a distinct trend on the part of physicians to write histories of all kinds. Several excellent autobiographies have appeared which are interesting not only as lives of the individuals concerned, but especially so because they tell much of the medical customs and practices of their times. Perhaps the most popular of these is *The Horse and Buggy Doctor,* by Arthur E. Hertzler, Harpers, which is a best seller. *More of My Life,* by Andrea Majocchi, Knight Publishers, is a fitting sequence to *Life and Death.* Among the many autobiographies by doctors which have appeared during the last few years, this stands easily at the top. It is a human document of intense interest. *Fifty Years a Country Doctor,* by William N. Macartney, Dutton, is a most interesting autobiographical volume which boosts the country doctor and holds that he is not only important to the world but will continue to maintain his place. *Not So Long Ago—A Chronicle of Medicine and Doctors in Colonial Philadelphia,* by Cecil K. Drinker, Oxford University Press, is a contribution to colonial history as well as to medical history of that period which has excited approbation everywhere. It concerns particularly Philadelphia and Pennsylvania. *Public Health and Medical Licensure in the State of Mississippi, 1798–1937,* by Felix J. Underwood and R. N. Whitfield, Mississippi State Board of Health, is excellent as history and as an example. *The Conquest of Cholera, America's Greatest Scourge,* by J. S. Chambers, Macmillan, is a most interesting and valuable account of cholera in the United States from its first appearance (1832) and its conquest in 1892. *Milestones in Medicine,* Introduction by James Alexander Miller, Appleton-Century, is made up of the "laity lectures of the New York Academy of Medicine" and is excellent as helping the public to understand the medical profession.

INDUSTRIAL HYGIENE

There have been innumerable articles and reports on industrial hygiene. There is constant increase in the number of chemicals and processes entering into manufacture and the industrial occupations, but few books have come to our notice. *Toxicology,* by William D. McNally, Industrial Medicine, a book of more than 1,000 pages, is a leader in industrial toxicological field and is indispensable to those interested in toxicology and its medicolegal aspects. *Fluorine Intoxication,* by Kaj Roholm, H. K. Lewis and Co. Ltd., is especially recommended for those interested in any of the various phases of fluorine intoxication. *Third Symposium on Silicosis (Saranac Lake),* edited by B. E. Kuechle, Employers' Mutual Liability Insurance Co., is the third annual symposium by noted students of this most important disease, which still presents many problems. There is nothing better of its kind in existence. *Carbon Monoxide Asphyxia,* by Cecil K. Drinker, Oxford Medical Publications, is a comprehensive and critical review by an authority of long experience. *Occupation and Health,* Supplement, International Labour Office (U. S. Branch, Washington) is written by outstanding authorities, mostly European. It is appearing in the form of brochures, 16 of which were issued in 1938. Highly valuable. From the same source comes *Workmen's Compensation for Silicosis,* giving summaries of the legal phases of the question throughout the world. These

supplement the Symposium from Saranac. Available in this country in 1938 though issued in 1937, is *Toxicology of Industrial Solvents,* compiled by the Industrial Research Board of the Medical Research Council of England, H. M. Stationery Office, which is indispensable to all working in this field. Closely related to the problems of the industrial hygienist are *Medical Jurisprudence and Toxicology,* by John Glaister, of which the 5th Edition was issued by Wood during the year, and *Medical and Legal Aspects of Tuberculosis as an Occupational Disease and as an Industrial Injury,* by Mary Graham Mack, National Tuberculosis Association.

LABORATORY

Outstanding among strictly laboratory books are *The Laboratory Diagnosis of Syphilis,* by Harry Eagle, Mosby. This is a very valuable study of a matter of vast importance which will command the respect of all readers. *A Textbook of Hematology,* by William Magner, Blakiston, is an excellent book which merits a high degree of popularity among technicians and practitioners of medicine. Among new editions is the second edition of *Approved Laboratory Technic,* by John Kolmer and Fred Boener, Appleton-Century. This is a well known textbook with 28 collaborators, the first edition of which was well received.

Bacteriology is the foundation of modern public health practices. Parasitology refers to animal parasites and for many years a section on this subject has been included in all textbooks on bacteriology. Consequently we look forward with a great deal of interest to all new books on these subjects. Perhaps the most notable publication of the year has been *The Biology of Pneumococcus,* by Benjamin White, *et al.,* Commonwealth Fund. Giving an extensive bibliography, it is an excellent reference book and readable. In the death of the senior author since this book appeared, the scientific world has suffered a great loss. We know of no study of the pneumococcus in this country which is more complete than this, beginning with the discovery of the germ in 1875. Another outstanding book is *Parasitology: With Special Reference to Man and Domesticated Animals,* by Robert Hegner, Francis M. Root, Donald L. Augustine, and Clay G. Huff, Appleton-Century. Special emphasis is laid on parasites which affect man—one of the best text and reference books in the English language. The second edition of *Bacteriological Atlas,* by Richard Muir, Wood, has been issued. It contains a number of improvements over the first edition, though still ultraconservative as far as nomenclature goes, and is an excellent work. *Dairy Bacteriology,* by B. W. Hammer, Wiley, is a notable second edition of a book which is one of the most authoritative and useful in its field. *A Textbook of General Bacteriology,* by Edwin O. Jordan—Revised by William Burrows, Saunders, is a standard text of many years. The revision is not all that could have been wished, but the book is still standard. *Pneumonia and Serum Therapy,* by Frederick T. Lord and Roderick Heffron, Commonwealth Fund, is the last word on serum therapy of pneumonia and is invaluable to practitioners and health officers. *Bacteriological Metabolism,* by Marjory Stephenson, Longmans. This is a second edition just out in 1938, and is perhaps the best thing on the subject, for general use, at any rate.

MENTAL HYGIENE

During the past year interest in mental hygiene has been very much to the fore. A striking instance was the symposium on mental health at the meeting of the A.A.A.S. Naturally much attention

has been paid to the development of the child along these lines. Among notable books are: *The Psychology of the Unadjusted School Child,* by John J. B. Morgan, Macmillan, a revised edition of a standard book issued in 1924, which is characterized by directness, clarity, and authenticity. It is an excellent practical guide for teachers and parents. *Clinical Psychology: A Handbook of Children's Behavior Problems,* by C. M. Louttit, Harper, is a clear interpretation of carefully collected material and its practical applications. Useful not only to the psychologists but also to medical students or the physician or school administrator seeking to keep abreast of the most recent work in the field of clinical psychology. *The Subnormal Mind,* by Cyril Burt, Oxford University Press, 2nd edition, is a worth while addition to the library of any worker in the broad field of child welfare. *Mental Hygiene for Nurses,* by Elizabeth Lee Vincent, Saunders, has already been mentioned under the heading of Nursing. *Mental Health Through Education,* by W. Carson Ryan, Commonwealth Fund, is of interest to all concerned with the influence of educational programs on the personalities of teachers and pupils and gives added impetus to the movement for a comprehensive, dynamic school program. *Safeguarding Mental Health,* by R. C. McCarthy, Bruce Publishing Co., is a well written book for popular use—parents, teachers, and any others who have to do with training of children. *Child Guidance Procedures: Methods and Techniques Employed at the Institute for Juvenile Research,* Paul B. Schroeder, Director, Appleton-Century, is a notable book which might be put under one of several heads. The dominant idea, however, is child guidance procedures.

NURSING

Public health nursing continues to hold the interest of all public health workers and, while there have been many discussions, all of them flattering to the part which the public health nurse takes in our social life, few books have appeared. *Personnel Policies in Public Health Nursing,* by Marian G. Randall, Macmillan, should be in the hands of every public health worker. Every chapter is full of meat. *Mental Hygiene for Nurses,* by Elizabeth Lee Vincent, Saunders, is a "must" book for every nursing library. It is a thoroughly excellent and exceedingly useful book. *Jurisprudence for Nurses: Legal Knowledge Bearing Upon Acts and Relationships Involved in the Practice of Nursing.* By Carl Scheffel and Eleanor McGarvah, Lakeside Publishing Co. The second edition of this text has been broadened somewhat to include new material on the legal standards of the nursing profession. *The Hospital Head Nurse,* by Mary Marvin Wayland, meets the great need of those who are particularly concerned with the efficient conduct of the executive aspects of ward nursing and the training of nursing personnel.

NUTRITION

Nutrition continues to hold a high place in the health discussions in every part of the world. Perhaps the vitamins and their influence are more discussed than any other single feature of nutrition, and during the past year the synthesis of vitamins has progressed rapidly and some of them, notably B_1, have been put on the market for the treatment of disorders of the nerves, arthritis, etc. There has, however, not been a great output of books, though some new editions have appeared. Chief among these is *The Foundations of Nutrition,* by Mary Swartz Rose, Macmillan, 3rd edition, a welcome revision of a widely used textbook of college courses in nutrition. There is none better. As an illustration of the

use of some of the vitamins in medicine we find *Vitamin B_1 (Thiamin) and Its Use in Medicine,* by Robert R. Williams and Tom D. Spies, Macmillan. A valuable contribution to the scientific literature of nutrition and excellent in every respect.

PUBLIC HEALTH ENGINEERING

Manual for Water Works Operators, edited by E. W. Steel, is an excellent exposition of basic information on water works operation, which is a desirable addition to the library of water works departments. *Public Works Engineers' Yearbook, 1938.* Including the Proceedings of the 1937 Public Works Congress held at Atlanta, Ga., October 4–6, 1937, published by the American Public Works Association. In addition to the more detailed discussion of selected problems of current interest to public works officials, this report contains a review and appraisal of events and developments in all phases of public works engineering. *Sanitary Engineering as a Career: A Monograph (from "Careers").* Published by The Institute for Research Devoted to Vocational Guidance. The profession of sanitary engineering evolved with the discovery that certain microscopic organisms and bacteria are the causes of some of the worst human diseases.

SOCIAL HYGIENE

In our last annual review we gave a section to syphilis. This disease and venereal diseases in general, have been the subject of many articles. Books which have treated of these diseases are often largely sociological and we have classified them this year under social hygiene. *Syphilis, Gonorrhea, and the Public Health,* by Nels A. Nelson and Gladys L. Crain, Macmillan, is written for health officers, physicians, nurses, social workers, and public health workers. It is comprehensive and authoritative and should be widely read. *Handbook on Social Hygiene,* by W. Bayard Long and Jacob A. Goldberg, Lea & Febiger, is a timely and authoritative symposium of 442 pages, giving technical guidance and basic philosophy in social hygiene.

TUBERCULOSIS

Tuberculosis is still a matter of constant interest in spite of the fact that we have learned so much about it and that our efforts at lessening the scourge have been so successful. *Tuberculosis Among Children and Young Adults,* by J. Arthur Myers, 2nd edition, Thomas, is the second edition of a book which first appeared in 1930 and gained considerable popularity. It has been brought up to date. *Pulmonary Tuberculosis in Practice,* by R. C. Wingfield, Wood, is a most interesting presentation of the subject with some ideas which are not accepted in America. It contains a wealth of information and is profitable to anyone interested in this disease. *The Collapse Therapy of Pulmonary Tuberculosis,* by John Alexander, Thomas, is a very unusual book, excellently illustrated, recommended to all interested in the subject of tuberculosis. This book on treatment is included, since among diseases the proper clinical care of pulmonary tuberculosis particularly is one of the most important measures in prevention.

VITAL STATISTICS

Graphs: How to Make and Use Them, by Herbert Arkin and Raymond R. Colton, Harper. This book should be on bookshelves next to *Statistical Methods* by the same author, Barnes and Noble, publishers. The entire book is written in the simple straightforward style that made *Statistical Methods* so valuable.

GENERAL

There are many books which might very well be classed under several

headings. The term general or miscellaneous is not at all satisfactory, but we use it for want of something better. Many of these books are educational along one line or the other. *Poisons, Potions and Profits: The Antidote to Radio Advertising,* by Peter Morell, Knight Publishers, is a thoroughly documented and devastating exposé of what radio is doing in advertising quack remedies. *Health, Hygiene and Hooey,* by W. W. Bauer, Bobbs-Merrill, should be in every household. It is an excellent exposition of quackery, ending in an appeal to common sense. *Principles of Medical Statistics,* by A. Bradford Hill, The Lancet, Ltd., is a well balanced, well written book on elementary statistics prepared at the invitation of the Editor of the London *Lancet*. It is written for physicians primarily, but is also excellent for the health worker. *Report on the British Health Services,* by Health Group of PEP, PEP, 16 Queen Anne's Gate, is a notable book presenting a comprehensive picture of the health services of the British Empire with some criticisms and suggestions and is a most useful study. *Diet and High Blood Pressure,* by I. Harris, Longmans Green, is an excellent book for the "normal individual, and not for people suffering from high blood pressure." *Father's Doing Nicely, The Expectant Father's Handbook,* by David Victor, Bobbs Merrill, deserves a wide popularity. In spite of the many jokes which have been made, there is a great deal of reality in what have been called paternity pains. In San Francisco the new hospital has an expectant father's waiting room. Certainly the obstetrician has more trouble with the father than with either the mother or child. *The Sanitary Inspector's Handbook: A Manual for Sanitary Inspectors and Other Executive Public Health Officers,* 3rd edition, by Henry H. Clay, Lewis, is admirable in every way and its usefulness is not localized by the fact that it was written around British acts, regulations, and by-laws. *Atlas of Skeletal Maturation (Hand),* by T. Wingate Todd and Associates, Mosby, is an excellent study giving a basis upon which better standards may be created, but is too technical for general use. *Allergy: Its Practical Application,* by J. A. Rudolph, Dorrance, is a specialty which considers much more than making skin tests. There is a useful chapter on Immunology of Allergy. *How To Live,* by Irving Fisher and Haven Emerson, Funk and Wagnalls, 20th edition, is recommended without reserve for lay readers especially. *Osler's Principles and Practice of Medicine,* by Sir William Osler, 13th edition, Revision by Henry A. Christian, Appleton-Century, is a truly great work which has been acclaimed over the entire world. This revision is welcome in spite of some criticisms. *Successful living,* by W. Beran Wolfe, Farrar & Rinehart, is a good investment which has a high degree of useability for men and women in active life. *Legal Medicine and Toxicology,* by Thomas A. Gonzales, Morgan Vance and Milton Helpern, Appleton-Century. Out of their extensive experience in the Medical Examiner's Office in New York City the authors of this monumental work have produced an eminently practical text on the duties and activities of coroners and medical examiners, and the technics employed by them. *The Public Assistance Worker,* edited by Russell H. Kurtz, Russell Sage Foundation, is as comprehensive a survey of the public assistance field as has yet been written.

A Brief History of Bacteriological Investigations of the United States Public Health Service—*By A. M. Stimson. Supplement No. 141 to the Public Health Reports. Washington: U. S. Government Printing Office,* 1938. 83 pp. Price, $.15.

This is an interesting and useful compilation. It begins with the founding of the Public Health Service in 1798, tells of the establishment of the Hygienic Laboratory in 1887, gives short descriptions of the other research institutions operated by the Service, including the National Leprosarium at Carville, La., and the Kalihi Hospital in Honolulu, and includes a picture of the founding of the new National Institute of Health Administration Building in June, 1938.

Thirty-seven subjects, beginning with anaphylaxis, are covered alphabetically. The history of plague is particularly interesting. Many of us remember the situation in San Francisco when Kinyoun discovered plague there. It is an unsavory story and we wish it had been given at somewhat greater length. Finally the Public Health Service was asked to clean up Chinatown and, as Dr. Stimson says, "it actually performed this Herculean feat," but he does not say, as we think he should have done, that this was under the direction of Rupert Blue, afterwards Surgeon General. We can admit that Kinyoun had the roughest time and did not obtain the support he should have had from certain quarters but, next to him, Blue went through a most trying experience and he should be given credit for his splendid accomplishment of the task.

Under poliomyelitis, the experiment by Anderson and Frost in the transmission of the disease by the *Stomoxys calcitrans* is quoted with what seems to be indirect approval, though the author goes on to say that other officers of the Service, notably Leake, Bolton, and Smith, soon convinced scientific people that *Stomoxys calcitrans* played no determining part in the transfer of the disease.

The most notable omission, and one which does not seem to be justified, is under the head of yellow fever. The author states the "bacteriological work relating to the disease was going sadly awry." He gives the findings of Geddings and Wasdin in confirming the claims of Sanarelli concerning the *B. icteroides* as the cause of the disease, for which they were decorated by the Italian government, though their error was promptly demonstrated. The author does not mention the fact that the U. S. Public Health and Marine Hospital Service, as it was then known, established a Yellow Fever Institute. In 1903, Working Party No. 1 of the Institute, consisting of Dr. Herman B. Parker, Assistant Surgeon, and Drs. George E. Beyer and O. L. Pothier, Acting Assistant Surgeons, made a report which was issued by the Government Printing Office, March, 1903, in which they described a "protozoan parasite," the "*Myxococcidium stegomyiae,*" which they believed to be the germ of yellow fever. This should be included in any history of the work of the Public Health Service. Their claims were studied by James Carroll, a member of the Reed Commission, who made a devastating report which was published in the *J.A.M.A.*, Nov. 28, 1903, Vol. 41, page 1341, proving that the "protozoan parasite" was yeast probably derived from bananas.

Deserved tributes are paid to Dr. Kinyoun, the founder and first Director of the Hygienic Laboratory, who deserves all that can be said of him as an officer, a scientist, and a man, to Dr. George W. McCoy, who was Director of the Laboratory from 1915 to 1937, and to Dr. Joseph Goldberger, especially for his researches on pellagra, and to Dr. Henry R. Carter for his

brilliant epidemiological studies on yellow fever. All of these tributes are richly deserved.

One typographical error has been detected on page 38, which is unfortunate, since the history will perhaps be read by others than professional bacteriologists—" B. eoli communior." The booklet is a convenient reference for anyone interested in the history of the Service. MAZŸCK P. RAVENEL

Avian Tuberculosis Infections—*By William H. Feldman, D.V.M., M.S. Baltimore: Williams & Wilkins,* 1938. 483 pp. Price, $7.00.

The author's exhaustive researches are exemplified in this well written book, which reviews the literature, examines the extant data critically, and points the way for further investigation in the field of avian tuberculosis. The volume is a splendid contribution to the literature on tuberculosis.

It is pointed out that " the rôle of the avian tubercle bacillus in tuberculous infection is not well understood "; that " the ability of the bacillus of tuberculosis of chickens to infect a long list of heterologous hosts makes this member of the genus *Mycobacterium* of considerable importance to the student of infectious diseases "; that avian tuberculosis, which is the most widespread and economically one of the most important diseases affecting poultry, constitutes a problem of considerable magnitude to the $200,000,000 poultry industry to the extent of losses aggregating to $12,000,000 annually; and further, that " dissemination of the disease from infected poultry to swine and other mammals constitutes a problem the economic significance of which is perhaps equal to that caused by infection in the original host."

The first chapter gives a kaleidoscopic historical résumé of avian tuberculosis, its incidence and geographical distribution. The second chapter deals with the biologic characteristics of the causative agent. A chapter is devoted to the isolation and culture of avian tubercle bacilli. There are sections on the diagnosis, the pathologic anatomy, and experimental tuberculosis in chickens. A detailed description is given of laboratory procedures for demonstrating tuberculosis infection in mammals and fowl. Four chapters deal with the pathogenicity of avian tubercle bacilli for fowl other than chickens, for certain mammals other than man, for cattle and swine, and for human beings. The author cites 13 specific cases of tuberculous infection in human beings in which the presence of avian tubercle bacilli appears to have been demonstrated, and then gives the details of 24 cases of alleged avian tuberculous infection in which the data were insufficient to support the diagnosis with the comment that " an analysis of the recorded data, obtained by reviewing the records as originally published, indicates that in the majority a diagnosis of avian tubercle bacillus infection was questionable or erroneous."

The author states further " when one considers the countless thousands of instances in which the type of the tubercle bacillus in human infections has been determined since the time of Koch, it may seem strange that the avian tubercle bacillus has been demonstrated so rarely. The explanation can only be that human beings have a formidable resistance to this particular form of the tubercle bacillus. The opportunities for infection are numerous, and if the avian tubercle bacillus were virulent in the accepted sense for human beings, it would seem reasonable to expect a far greater number of proved cases. Apparently, therefore, it is only the exceptional individual who becomes infected with the avian tubercle bacillus."

The book concludes with chapters on tuberculin testing and the public health aspects of the disease.

The enormous amount of research done by the author is significantly portrayed in the voluminous lists of references following the various chapters.

The photographs, tables, printing, and arrangement of material are in keeping entirely with the excellence of the subject matter. The book is recommended without reservation of any kind. BERNARD S. COLEMAN

Teaching With Motion Pictures: A Guide to Sources of Information and Materials—*By M. E. Townes. New York: Teachers College, Columbia University,* 1938. 28 pp. Price, $.25.

Probably the most complete guide in print prepared for those "who use the motion picture as a teaching aid," its interest and helpfulness extends beyond the teaching field. It covers both educational and theatrical pictures. There is much for the parent and the student of motion pictures.

The information as to sources of existing pictures, and new pictures, is comprehensive. *Movie Makers* is omitted as a source of new pictures, and of free ones. "Making Motion Pictures in School" omits the National Board of Review as a source of information on school clubs and their picture production, confuses the mention of Amateur Cinema League, which is not a club, but a national source of information, through its magazine about local clubs and school made pictures.

EVART G. ROUTZAHN

An Introduction to Bacteriological Chemistry—*By C. G. Anderson. Baltimore: Wood,* 1938. 278 pp. Price, $4.00.

This book does not attempt to be a complete treatise, but it covers the subject adequately for anyone who desires to obtain a general survey of the field. The material is treated under three major heads, covering the general aspects of bacteriological chemistry, the metabolism of bacteria, and a summary of certain aspects of immunochemistry.

Although the author presupposes a knowledge of the fundamentals underlying the field, he gives in Part I an adequate summary of the physical chemistry of certain very important processes in bacteriology. This includes colloidal phenomena, the measurement and importance of hydrogen ion concentration, and oxidation-reduction potentials.

Part II, the metabolism of bacteria, contains chapters on the nutrition of autotrophic and heterotrophic bacteria, nitrogen and carbohydrate metabolism, the proteins, carbohydrates, and lipoids of microörganisms as well as a brief summary of industrial fermentations. Karström's work on adaptive and constitutive enzymes are adequately discussed.

Part III deals with the chemistry of antigens, haptens, antibodies, and complement as well as the mechanism of antigen-antibody reactions. A fairly complete summary of our knowledge of artificial antigens is given. The final chapter lists a few of the methods used in the isolation and identification of some of the metabolic products of microbial activity.

The author has made no attempt to deal with the chemistry of culture media, staining reactions, disinfection, or chemotherapy. The printing and make-up are excellent. There is a good index. OLIVER H. PETERSON

Lillian Wald, Neighbor and Crusader—*By R. L. Duffus. New York: Macmillan,* 1938. 371 pp. Price, $3.50.

In presenting the great personality of Lillian Wald, the author also gives a somewhat intimate picture of the origin of many significant developments in American life which were guided in no small degree by the founder of Henry

Street Settlement. Miss Wald's genius in organizing and directing humanitarian enterprises, her rare humor and deep sympathy, her vision, and her active participation in liberal movements of her generation are vividly portrayed in this volume describing the career of one of the best known and beloved women of her time.

The conception and growth of public health nursing, including school nursing, the idea for the organization of the United States Children's Bureau developed at the breakfast table at Henry Street, important contacts in local, state, national, and international affairs, as well as glimpses of the daily life of Miss Wald, are described in a manner to interest a wide audience.

IRA V. HISCOCK

Maternity Care in a Rural Community—*By Maxwell E. Lapham, M.D. New York: Commonwealth Fund,* 1938. 65 pp. Price, $.25.

This concise, readable, little volume should be of interest to public health workers and physicians practising obstetrics wherever conditions surrounding childbearing are similar to those prevailing in Pike County, Miss., which, the reviewer judges, is a typical "rural community." More than two-thirds of Pike County's citizens live in the country. Nearly half the mothers are delivered by ignorant midwives. Maternal and neonatal death rates are high.

The Pike County Health Department has sought to remedy the situation by furnishing the following services: prenatal and postnatal visits; clinics for medical examination of maternity cases not under a private physician's care; clinics for the treatment of syphilis; instruction and supervision of midwives.

This study, made through the coöperation of the Commonwealth Fund, the local practitioners and the local health department, shows what was accomplished during the period 1931 to 1936. Using objective standards it gives a very detailed appraisal of the nursing services. It also evaluates with care the other health department activities and the current midwife and medical practice.

On the basis of the facts revealed, the author suggests specific ways in which every phase of maternity care as provided in Pike County could be improved. His recommendations are sound, practical, and of wide application.

HESTER B. CURTIS

Teachable Moments—*A New Approach to Health—By Jay B. Nash. New York: Barnes,* 1938. 245 pp. Price, $1.50.

The title of this book refers to the moments when one is in a position to learn efficiently and rapidly. In the health field, the author states, there are at least four such moments: when a child exhibits curiosity or feels that differences make him conspicuous; in adults, when they are scared, or when, as parents, they want something better for their children.

Since such moments occur but rarely in a formally organized classroom, and since "there are not enough hygienic facts worthy of memorization to challenge an average intelligent child for over an hour a week for a semester," the author concludes that hundreds of thousands of dollars are being wasted each year "in earnest but misguided attempts to promote health through teaching hygiene." The child is much more apt to develop healthful habits if he gets his hygienic training in a home and a school which are in themselves wholesome, and which present surroundings conducive to proper health practices. It is the business of the adults to protect the children and to provide a wholesome environment for them; not to talk to them about health

and to make them thereby more self-conscious and afraid.

This challenge to health education is presented with a summary of the health facts which the adult needs to know in order to provide this wholesome environment. Attainment rests on a foundation of rest, sleep, and balanced diet, plus happiness, especially joy in one's work.

While many of the criticisms of modern health education are justified, one questions if a true picture has been presented of schools in general at the present time. The author holds promise for adult health education, although few constructive suggestions are given, as would seem desirable if it is to be the acme of health instruction.

Expressing challenging and critical statements about health education, the book should provoke discussion and stimulate thought about ways in which present methods of teaching health in schools can be improved so that no author can again call it "a remnant of the Middle Ages philosophy of scholasticism." MURIEL BLISS

Reference Handbook for Nurses —*By Helen F. Hansen. Philadelphia: Saunders,* 1938. 347 pp. Price, $1.50.

Miss Hansen's handbook, designed for anyone doing bedside nursing, should prove a welcome and valuable aid to the public health nurse. It contains in concise form information necessary to giving adequate, effective nursing care and to making intelligent observations.

A very practical bit of advice is given regarding the importance of keeping one's registration up to date and, before accepting a position in another state, ascertaining if one will be eligible there for registration.

The volume is divided into two parts. Part one discusses such topics as first aid, materia medica, frequently used nursing procedures, and dietetic therapy. Principles of first aid in general and of emergency treatment of poisons in particular are discussed, as well as symptoms and treatment in conditions such as bites, fractures, hemorrhage, wounds.

Paragraph headings in heavy type facilitate finding information; cross references are made to places where a more complete consideration of a topic is given. The section devoted to materia medica includes a review of common weights and measures. Common drugs used are classified in the basis of site of action. The average dose, toxicology and treatment are briefly discussed. The fact that the use of protamine insulin is considered indicates that recent developments are included. A wide variety of frequently used nursing procedures, treatments, and diagnostic tests are presented. Stress is placed upon preparing the patient emotionally and utilizing opportunities to teach personal hygiene. The matter of sterilization of equipment is approached in a manner which makes it applicable to a home situation. Likewise, suggestions for improvised equipment may give new ideas for more effective care.

Part two, "Notes on Nursing," is particularly well written. It contains pertinent information related to medical and surgical conditions, communicable diseases, psychiatric nursing, obstetric and gynecological nursing, in which the preventive aspect is stressed. A brief discussion of child care emphasizes normal growth, development, and the ideal of positive health. Attention is called to the importance of regarding the child as an individual and guiding him in making adjustments to his environment.

Throughout, particular emphasis is placed upon preventive aspects and upon the opportunities of the nurse as a health teacher. The style is readable and clear. O. E. CARLSON

The Culture of Cities—*By Lewis Mumford. New York: Harcourt, Brace,* 1938. 586 pp. Price, $5.00.

For over 15 years Lewis Mumford's writings have reflected a deep insight into the problems of decent human living as they are affected by the physical character of cities and urban housing. His latest book, widely hailed as a major contribution to the social thinking of our generation, will be of direct interest to many in the health profession for the light it throws on the relation between city building, housing, and the opportunities for an urban life which shall be not only healthful in the technical and statistical meaning of the term but vital and self-renewing in the broadest sense.

The first half of the book treats of the manner in which cities have grown since the Middle Ages, tracing (with the aid of consummately well chosen photographs) a steady decline in the fundamental human decencies from the walled medieval town to the vast, sprawling, crowded, unplanned aggregations of people and buildings, the "insensate industrial towns" of the 19th century. In a masterful first chapter which is one of the high points of the work, Mumford challenges the customary view of the medieval town as crowded and essentially unhealthful, holding it rather to have been relatively open, well-scaled to human needs and activities, and hygienically superior in many respects to the more complex cities which followed it down to the last half-century.

The decencies and amenities of living are shown to have been less and less considered as the city evolved from its primitive form through the Renaissance or Baroque city—with its emphasis on the broad avenue for military display, its grandiose architectural façades to glorify the agencies of political power—to the industrial megalopolis which sacrificed all human decencies to the planless crowding of workers near their shops and factories.

Though his damnation of the city as we have known it is hardly to be matched for vigor, Mumford is no medievalist, no advocate of return to the hand-loom and the subsistence-homestead as the road to a durable society. He does not argue the impermanence of the great city, but rather the possibility of humanizing it. The later sections of the book review the means at hand (some of them far more highly developed and better tested than is generally recognized) for this humanization: regional planning as a background for stable urban development; decentralization of metropolitan population and of the less specialized urban functions into satellite garden cities which can support the necessary specializations of the mother city; progressive community planning and modern housing as a means of rebuilding the mother city itself—all with the purpose of giving greater dignity and permanence to the physical city, new spirit and well-being to the human beings who comprise the city, and new vitality to the culture that is the city's excuse for being.

ALLAN A. TWICHELL

The Self You Have to Live With—*By Winfred Rhoades. Philadelphia: Lippincott,* 1938. 182 pp. Price, $1.75.

This is essentially an inspirational book, a modern version of those treatises on life, of long and honorable literary history, that have drawn on the common sense and wisdom of the ages, back to the inspired scriptural writers and the ancient Greek philosophers from whom we have inherited treasures of knowledge held valid to this day. To the precept "Know Thyself" the present author adds the injunction "Live With Thyself," positing under this concept a rule of life that draws

liberally on the findings and teachings of modern psychology and psychiatry adapted to his personal philosophic predilections. Reflecting the lessons of his own life and a desire " to pass along to other suffering and struggling people some of the things I had learned in the hard and long school of personal sickness," his essay may be said to derive from a " variety of religious experience " that gave him motive power and insight making for healthy personal adjustment of a quality and degree he confidently considers attainable by others like-minded in their grasp and acceptance of certain underlying principles and attitudes.

It is a combination of spiritual and mental hygiene that we are offered in this treatise on " how to live," which is based also on the author's psychological work in the Boston Dispensary unit of the New England Medical Center, where he has conducted classes in " thought control " and helped and advised individuals with adjustment problems. While tenuous in its psychological material, it has great value, in the opinion of this reviewer, in the attention it gives to volitional factors and in its appreciation of the rôle of " will " in human behavior, which modern psychology tends to neglect in its preoccupation with thought and emotion. Hence the relevance of religion, as well as psychology, in human motivation and conduct, as emphasized by this writer and as other psychological writers are coming vaguely to recognize. But the " return to religion " must be rooted in sterner stuff and in solider concepts of the nature and meaning of religion than some psychologists are offering us at this time, if the mechanists, determinists, and materialists of mental science are to be convincingly gainsaid. The present author, for example, defines religion as " intrinsically not a belief, not a doctrine . . . but conscious association with the divine Spirit and Life." This is a pale formula to oppose to the negative convictions of the psychoanalyst who regards religion as an " illusion." PAUL O. KOMORA

Carbon Monoxide Asphyxia—*By Cecil K. Drinker, M.D., D.Sc. New York: Oxford University Press,* 1938. 276 pp. Price, $4.50.

We have long known of Dr. Drinker's intimate knowledge of carbon monoxide poisoning and a profound textbook on the subject by him is a welcome and timely accession to the literature on this important subject. The work is dedicated to Oscar H. Fogg, first with the American Gas Association and later with the Consolidated Edison Company of New York, because of his untiring efforts for safety in the use of gas. It is written primarily for those who have practical concern with carbon monoxide asphyxia, and as a contribution to its intricate physiology and biochemistry. The detached point of view of both the medical investigator and the industrialist has been kept in mind. Chiefly facts, but some best theories, have been extensively culled from the literature and evaluated in relation to modern knowledge so that many authorities are cited and not a few quoted at length.

The reviewer is profoundly impressed with the care of preparation and the fine choice of language and description, which is always concise and practically never leaves any doubt in the reader's mind as to shades of meaning. The possibilities under different situations are almost invariably fully discussed, leaving few if any questions in the reader's mind. One senses throughout the strictly critical and impartial attitude of the true scientist who is thoroughly familiar with the subject he treats. The author has left the important chapter on analytical methods to Julius Sendroy, Jr., in which again one finds a masterful handling of the chief historical methods and the ac-

cepted present-day procedures, aided by three valuable tables, and guided by the opinions of the author as to the relative importance of various procedures.

Most valuable features of the text are the suggestions for further observations on various desired or controversial points.

This reviewer has found very little for critical comment. There is little repetition. Possibly a few paragraphs might have been included on the chemistry and metallurgy of carbon monoxide, the temperatures at which it may be oxidized to complete combustion under different conditions of physical surroundings, etc. The author has been very careful to distinguish between carbon monoxide and illuminating gas although there is some doubt on page 34, while Case No. 3 on page 41 is probably not a good selection since the patient could not be followed long enough. Also, in the table on pages 38–39, the previous condition of the hearts of the various cases had no doubt to be omitted as unknown, yet such would seem essential in establishing the circulatory effects on the patients after carbon monoxide asphyxia. On page 103 the author appears to be opposed to the requirement for ventilating all gas appliances with flue connections, but such a provision was enacted by the Ohio Public Health Council about 1923, covering all gas outlets in new construction, except those for lighting purposes only, and has appeared to be satisfactory, although the reviewer is conscious of the great lack of enforcement of the provision—due chiefly to lack of funds for supervisory services. In the table on page 142 it would strike the reviewer that all cases showing more than 115 per cent hemoglobin would imply a "conspicuous increase" whereas the author would include only three cases ranging from 134 to 154 per cent, but the point is a small one.

The exact complexion of what is meant by "chronic" carbon monoxide poisoning is admirably handled. In regard to this form of poisoning, the author has apparently overlooked Charles Weisman (*Pub. Health Bull. 81,* 1917) on the "Effect of Gas-Heated Appliances upon the Air of Workshops," in which also appears a valuable Appendix B containing an abstract of an article by Morel and Mouriquand from a French source (1910) on a remarkable series of cases exposed for several years and followed up later.

We also note no comment on the use of nitrites in treatment, at the same time well recognizing, as Dr. Drinker says, "that practically every possible and impossible drug has been used in carbon monoxide poisoning."

When one faces the enormous literature on this, "the most widespread poison connected with human life and activity since the first discovery of fire," there can be no doubt that Dr. Drinker has selected and evaluated the essentials and drawn from his own experience the most masterful conclusions we have upon the subject at the present time. EMERY R. HAYHURST

Proceedings, National Health Conference. 163 pp. Price, $.35.

The Nation's Health. 116 pp. Price, $.20.

Toward Better National Health. 30 pp. *By Interdepartmental Committee to Coördinate Health and Welfare Activities. Washington: U. S. Government Printing Office,* 1938.

Every serious student of the problem of providing adequate medical care will need to possess the first of these publications. It is a verbatim report of the National Health Conference, indexed by speakers. It includes the full report of the Technical Committee on Medical Care.

The second publication is intended to give the same information in a briefer and more readable form. Both

the proceedings and the report of the Technical Committee have been edited. Headlines and a running commentary are supplied and numerous extracts from speeches are included in eight-point type. The editors have been careful to underline harmony and to delete discord. The full story of the conference to be read comfortably in the proceedings is well worth the extra fifteen cents.

Toward Better National Health is frank propaganda * well illustrated with photographs from the Department of Labor, the Farm Security Administration, the Public Health Service, and the Works Progress Administration. It is designed to promote public support for legislation which will embody the proposals of the Technical Committee on Medical Care. Since dictatorial governments cannot function without propaganda, it is probable that democratic governments will be obliged to use increasingly all the instruments of publicity to state their case to the voters. Incidentally the exponents of popular health education may well study this pamphlet as an example of how it should be done.

* This word is used in the sense of "special pleading." It is not intended to imply the use of any artifice of deceit.

J. ROSSLYN EARP

Diseases of the Skin for Practitioners and Students — *By George Clinton Andrews (2nd ed.). Philadelphia: Saunders,* 1938. 899 pp. Price, $10.00.

To the professional worker in public health there are likely to be two aspects of a treatise on dermatology in which he is specially interested, the Sections on syphilis and on the exanthemata.

The former may be said to receive adequate treatment, at least so far as the skin eruptions are concerned, in more than a hundred pages covering this multiform disease. The diagnosis and treatment are described in terms of the findings of the Cooperative Clinical Group.

With respect to the exanthemata, the author apparently considers them not to be "diseases of the skin" and consequently dismisses scarlet fever and measles with only a word. It may properly be asked where an epidemiologist may expect to find help in the differential diagnosis of skin eruptions if not in such a text as this, especially when diphtheritic infection of the skin, tuberculosis of the skin, and many of the rare tropical eruptions are so fully described. The addition of such a section would enrich a subsequent edition for all public health workers.

As a whole, this volume may be regarded as excellent, partly because of the lucidity of the text and certainly because of the quality of the illustrations, of which there are 938. The author's treatment of the cutaneous manifestations of tularemia deserves special mention, and the section on leprosy is unusually good. A well prepared index rounds out a book, which can be recommended in its field.

REGINALD M. ATWATER

Medical Information for Social Workers—*By William M. Champion, M.D. Baltimore: Wood,* 1938. 529 pp. Price, $4.00.

Dr. Champion and 8 coworkers from the Faculty of Western Reserve University School of Medicine present 30 chapters of medical information for the social worker "to enlighten beginners in social work and to enrich the medical knowledge at the command of the more mature social worker."

There are an introduction and three chapters dealing with the fundamentals of the social worker's need for medical information, historical aspects of medicine, and notes on the selection of a physician. Then follow 9 chapters

on diseases of the adult including, among others, diseases of the cardiovascular system, arthritis, rheumatic fever, respiratory diseases, endocrine disturbances, allergic diseases, syphilis, and tuberculosis. The section on pediatrics has 6 comprehensive chapters with special emphasis on the care of the new-born, "the first year," and on feeding and nutritional problems. The more common diseases of infancy and childhood are described.

The portion of the book devoted to surgery discusses indications for operation, blood transfusion, asepsis, trauma, amputations, and other conditions which have a definite medical-social significance, indicating the service the social worker can render to the surgeon and to the patient in explaining to the patient the need and indications for surgical treatment and in effecting adjustment of compensation claims, etc.

Nine chapters give medical information in the more specialized fields of cancer, gynecology, orthopedics, diseases of the ear, nose, and throat, and finally obstetrics.

Concluding this volume are an appendix on exercises in anatomy and physiology, and a bibliography of selected references to supplement the subjects discussed in the text. This collateral reference list has been chosen with care.

Throughout the book the reader is impressed with the simplicity of the language, the orderly presentation of the material, and the emphasis on the usefulness of the medical information to the social worker. It is only regrettable that some statements which are given as facts are not qualified. For example, in the chapter on tuberculosis, it is stated that this disease "still kills approximately 100,000 persons each year" in the United States. In 1937 there were 69,151 deaths according to the National Tuberculosis Association. Also, Dr. Koch discovered the tubercle bacillus in 1882 and not in 1870, the date given.

In spite of some inaccuracies and scattered positive statements on moot questions the book should be helpful to social workers and others who are frequently in contact with the sick.

BERNARD S. COLEMAN

Biology and Pathology of the Tooth and Its Supporting Mechanism—*By Bernhard Gottlieb and Balint Orban; translated and edited by Moses Diamond. New York: Macmillan,* 1938. 195 pp., 166 ills. Price, $5.00.

The views of Gottlieb, and later, of Gottlieb and Orban, on the physiology and pathology of the periodontal tissues have been known to the dental profession in America for a number of years, chiefly through articles in the journals. Now for the first time a comprehensive presentation of their findings is available in book form in English.

While not all American research workers are in agreement with all the beliefs held by these notable workers in the field, it remains true that they have satisfactorily elucidated many of the fundamental facts in this field on which tenable theories must be built. Particularly important is their presentation of the biology of the supporting mechanism of the teeth, to which the major part of the book is devoted. Throughout much emphasis is given, and rightly so, we believe, to the relations between the state of the occlusion (bite) and the health of the periodontal tissues.

In the section dealing with disease of the supporting tissues of the teeth, several statements are made that are of interest to the physician and public health worker. In discussing ulcerative gingivitis, the authors suggest that the fusospirochetal organisms may not be the cause of this condition since they are

found in many healthy mouths as well as in cases having this disease. The ready communicability of the disease in acute cases will lead the epidemiologist to question this statement, but the basic contention of the authors is undoubtedly sound as regards the true cause lying in a susceptibility of the tissues due to other factors. Again they state that pyorrhea is not so important a cause of toxemia from focal infection as periapical infection, since the pyorrhea pocket has free drainage. Careful evaluation of this statement is needed especially with regard to such factors as pocket depth and involvement of the bifurcations of the molar teeth.

In regard to pathology the authors reiterate their earlier statements that there are two types of periodontal disease, Schmutz (Filth) Pyorrhea and Diffuse Atrophy. Discussion of the latter condition is somewhat unsatisfactory due to lack of a definitive statement as to its nature and cause. Much light is nevertheless shed on the course of the pathologic processes under consideration.

Throughout the book the beautiful reproductions of histologic and histopathologic specimens assist the authors in presenting their views and add to the enjoyment of the reader. Here is presented for the first time, so we undersand, a new process of photographic reproduction. The results are worthy of special comment.

The work of Diamond as translator has obviously contributed much to the readability of the book. Whether in agreement with all the views of the authors or not, the book is a "must" item for anyone who attempts to gain a real understanding of the periodontal tissues in health and disease.

JOHN OPPIE MCCALL

Manual of Public Health: Hygiene —*By J. R. Currie, M.D. Baltimore: Wood,* 1938. 324 pp. Price, $5.00.

Dr. Currie, Professor of Public Health at the University of Glasgow and Examiner in Public Health for the License and Diploma of the Triple Board in Scotland, has prepared this manual of public health and hygiene primarily for the use of medical students. The volume is in the nature of a summary of subjects with which the health officer deals in his everyday duties, and recapitulates the subject matter in the course of public health to which medical students are exposed during their academic training.

The author has designed the book in a novel way undertaking to arrange the chapters so that priority is given to the "social aspects of Hygiene," that is, in the words of the author, "the attempt is made to follow the individual, in his relation to the social services, from his inheritance through his prenatal and infant existence, his young childhood and his school years to his active working life and finally, his old age." Thus there are short chapters on inheritance, maternity and child welfare, school hygiene, mental hygiene, industrial hygiene and social insurance. Only 4 pages are devoted to Public Health Administration (England and Wales and Scotland), and 10 pages to vital statistics. There is a section on Food. Then follow chapters on ventilation, heating, lighting, water supply, waste disposal, housing, and hospitals. Between the sections on the health services of communities and those on infection and infestation is a concise chapter on personal hygiene.

The concluding chapter on international health relations deals with sea and air-port sanitary regulations, protection against invasion by disease from foreign lands conveyed by the steamship and aeroplane, and finally with an account of air-raid precautions relating exclusively to civilian action in preparing against "war gas" attacks, with a description of methods for providing

collective and individual protection. The note on "Air Raid Precautions" has been added because "it now appears that in view of recent belligerents the unarmed civilian population of an enemy country is a fair mark for bomber aircraft."

The volume is precise. Fifteen tables and 34 photographs, diagrams, and drawings accompany the text. There is an index but no bibliography nor references, which, if carefully selected, would have enhanced greatly the value of the book. BERNARD S. COLEMAN

Air Conditioning for Comfort—*By Samuel R. Lewis (3rd ed.). Chicago: Keeney Publishing Co.* 285 pp. Price, $2.50.

This is a good, lucid, elementary engineering text. It has little to do with public health. The second edition was reviewed in this *Journal* of March, 1936, p. 303. The present edition is reviewed favorably and more fully in the October, 1938, issue of *Heating, Piping and Air Conditioning,* the publication which carries the Journal Section of the American Society of Heating and Ventilating Engineers.

CHARLES LUNDY POOL

Nutrition and Diet Therapy—*By Fairfax T. Proudfit (7th ed). New York: Macmillan,* 1938. 923 pp. Price, $3.00.

This is the seventh edition of a book that has become very well known and widely used since its first appearance in 1918. The present edition has been revised and reorganized to comply with the new curriculum of the National League of Nursing Education.

In the section on normal nutrition every effort has been made to stimulate the student to do individual thinking. Laboratory lessons have been added to the dietetic section to coördinate with the different chapters of lecture material, and have been arranged in a separate section to facilitate their use.

Laboratory work is appended to each chapter in the diet-therapy section as a practical application of the theory. In this manner emphasis is placed on the reasons for the modifications of the diet necessary to meet the specific pathological condition. The laboratory procedures may be carried out in the laboratory, classroom, or special diet kitchen as the situation permits.

The last section of the book contains a series of recipes for the dishes mentioned in the text, and also an appendix of over 60 pages giving very useful tables of food values, vitamin contents, ash constituents, etc., a personal health standard and scale, quiz questions on the text, and a list of reference readings.

An effort has been made—

> To show the close relation of good nutrition to good health and to impress the student with the importance of maintaining a high level for her own health standards, stressing the part good food habits play in keeping her body fit. A course of reading has been suggested which should keep the student abreast of the nutrition work being carried on as part of a program for the peace and happiness of people throughout the world.

C. R. FELLERS

Sleep—*By Ray Giles. Indianapolis and New York: Bobbs-Merrill,* 1938. 290 pp. Price, $1.75.

This popular treatise on sleep, "the secret of greater power and achievement," was written "to help you to enjoy your waking moments still more by improving your hours in bed." The book is based on psychological and physiological research of such authorities in the field as Dr. Donald A. Laird. Interspersed with this scientific background, are frequent quotations from the private sleep recipes of famous people, especially from authors, actors, and artists. While these quotations add popular appeal, the author properly questions how fully the suggestions should be advocated.

The book gives practical suggestions for the improvement of sleep, deals with the effects on sleep of various factors, such as evening exercise, night snacks, sleeping powders, beds and mattresses, light and noise, posture, diet, and worry. Throughout, emphasis is given to the relation of good physical condition and proper health habits to sleep. At the end of the book is given a list of 51 questions on physical and mental health habits and conditions. Perhaps insomniacs will discover the clue or even the underlying cause for their complaint in their answer to these questions.

One of the major criticisms of the book will probably be the fact that it presents many conflicting opinions, without giving, in some cases, correct conclusions, thus leaving the reader to draw his own. The author justifies this by the fact that there is disagreement on many phases of sleep, even among medical authorities. The book is interestingly written.

IRA V. HISCOCK

Bergey's Manual of Determinative Bacteriology—*By David H. Bergey, Robert S. Breed, and E. G. D. Murray (5th ed., advance reprint). Baltimore, Md.: Williams & Wilkins,* 1938. 77 pp. Price, $1.00.

The preprint includes the Table of Contents for the book, 68 pages of general discussion, a Key to the orders of the class Schizomycetes and a Key to the families of the order Eubacteriales.

A Historical Survey of Classifications, omitted from the 4th edition, has been rewritten with emphasis on outlines proposed since 1923. It forms a valuable reference background.

The section on How Bacteria are Named and Identified is carried over from the previous edition.

The Rules of Nomenclature have been considerably revised in accordance with the revision of the International Rules of Botanical Nomenclature (Amsterdam Congress, 1935) which are quoted in so far as they apply to bacteriological nomenclature.

Comment upon changes in the systematic position of various organisms is difficult until the complete text of the book becomes available. At a glance the reviewer sympathizes with the transference of Klebsiella to a position close to Aerobacter in the tribe Escherichieae but awaits with interest the reasons for placing Serratia in the family Enterobacteriaceae and the exclusion of Alcaligenes from this family. The family Mycobacteriaceae has probably been deprived justly of 6 genera which have been placed in other families. The change in the generic name of the glanders bacillus from Pfeifferella to Actinobacillus to Malleomyces is probably justified on the basis of priority; the last is a good descriptive name and we hope it has returned to stay but the reasons for its inclusion in the tribe Pasteurelleae are not fully apparent. Fortunately only the generic and specific names of organisms are commonly used; consequently they may be transferred from one tribe, family, or order, to others without disturbing the nomenclature. The names of genera and species become embedded in the literature. It is cause for gratification that only eight new generic names are introduced in the 5th edition of *Bergey's Manual*. Until more is known about the definition of a bacterial genus it is well to be conservative. As is recognized in the pages of general discussion of the reprint, the question of genera among the bacteria is at present largely a matter of convenience. In the past it was a matter of convenience (now outgrown) that all rod-shaped bacteria were called Bacillus. Largely because so many bacteriologists were working with the Gram-negative bacilli, it became convenient to divide these into a number of genera. It may be that

this division has gone far enough or even too far in some instances; *e.g.*, it may be that Escherichia, Aerobacter, and Klebsiella will be found to form one natural genus and that Eberthella and Salmonella may form another. If generic distinctions of similar magnitude were applied to the many species of sporulating aerobes (Bacillus), sporulating anaerobes (Clostridium) and streptococci (Streptococcus) each of these genera might be subdivided into many genera. The responsibility for naming bacterial species is not quite so great, for, although knowledge of the organisms may be far from complete, the determination of stable differences under identical conditions provides a fair basis for specific differentiation.

The continued issuance of editions of *Bergey's Manual* is a sustained effort to evaluate and correlate the work of individual systematists and, under competent authorship, is of the utmost importance to bacteriology.

J. HOWARD BROWN

Safety Education Through Schools—*National Education Association, 1201 16th St., N.W., Washington, D. C.*, 1938. 60 pp. Price, $.25.

This is a " research bulletin " covering current school practices and teaching methods in elementary and high schools, and " necessary improvements in the teaching of safety."

Practically all forms of safety practice are represented in the list of 63 non-school organizations distributing free and inexpensive material—teaching guides, printed matter, plays, posters, films, slides, and film slides. Generous annotations seem to make clear what is available from each source. However, there is no evaluation of teaching values.

Under " Reviews of Safety Films and Slides," all necessary information is given as to 99 individual movies, 16 sound-slide films, and film strips. The brief synopsis for each film and slide-film includes an attempt at evaluation, and an indication of the advertising content, if any.

Of course much of the material described is usable with adult audiences.

EVART G. ROUTZAHN

Penny Marsh: Public Health Nurse—*By Dorothy Deming, R.N. New York: Dodd, Mead*, 1938. 266 pp. Price, $2.00.

This is one of a group of Course Books, presenting in entertaining story the " requirements, problems, pleasures, and future possibilities of selected fields of work " for young people. Penny Marsh does all of this and more. It is a well written, swiftly moving story of a young nurse who becomes a public health nurse.

The heroine becomes interested in doing visiting nursing in a small city, she takes a course in public health nursing, she becomes a county public health nurse on her own, with all the adventures a nurse might have. The climax is her experience in a flooded town on the Ohio—all of which is told with interest and authenticity. Nicely balancing the professional side is a love story, which reaches a satisfactory conclusion after some suspense.

Written for high school age and older girls, the book should be popular, and for a girl looking for advice on a career, this should help materially. In fact, many recruits might come to the ranks of public health nursing—there is such appeal in the story for the budding careerist. M. McC. HISCOCK

Textbook of Anatomy and Physiology — *By Diana Clifford Kimber, Carolyn E. Gray, and Caroline E. Stackpole. (10th ed.) New York: Macmillan*, 1938. 643 pp. Price, $3.00.

This excellent book was first copyrighted in 1893 and has now reached

its 10th edition. It has been improved and brought up to date. The added material brings it to such a level that it meets the requirements of the new curriculum but still in its simplicity and style it remains a tradition in the schools of nursing today. The correlation of the anatomy proper with the various organs and systems of the body makes the subject matter so easy to understand that the student nurses soon lose their fear complex as step by step they grasp the knowledge of the body structures and the life processes in which they take part. This old friend to the nurses in its new dress and form is better than ever before and will be welcomed by students and teachers and all interested in the nursing profession.

The printing and make-up are excellent. The illustrations are well chosen, abundant, and many of them are beautifully done in colors. A good example of these is found in those depicting the anatomy of the neck with the blood vessels in their proper colors.

Beginning with its first edition this book has always maintained a prominent position, and this 10th edition will be not only a joy to its old friends, but will appeal to new readers wherever teaching of nurses is carried out.

ELEANOR KEELY

Appertizing or The Art of Canning —*By A. W. Bitting, M.D. New York: The Glass Packer (11 West 42nd Street)*, 1937. 852 pp. Price, $7.00.

Besides full familiarity with existing literature on the subject, the preparation of a complete and reliable text on canning requires specialized and practical knowledge which can be acquired only by long and close association with the canning industry. Therefore, on the rare occasions when a new book on canning is announced, the question logically arises as to whether the author is qualified to deal authoritatively with his subject.

However, in the case of this book, it is questionable whether any one individual now associated with the canning industry is better qualified than the author to cover the various phases of canning presented in the text. The name of Dr. Bitting—as well as that of his late wife, Katharine Golden Bitting —has been long and favorably known both to canners and to workers in the field of canning technology. Individually, and as a research team, their contributions are well known to workers in their field. This review would not be complete without a further word concerning the author.

The author's experience has included research on foods in Experimental Stations, in the Bureau of Chemistry, in the Research Laboratory of the National Canners Association, and as director of research for the Glass Container Association. During the World War he served in France in the planning branch of the Quartermasters Corps. In the course of his work as consultant, he was selected as adviser on food exhibits to A Century of Progress Exposition. It is from the wealth of experience gained from such close and varied relations with the canning industry that the author's present complete and constructive contributions to the rather limited literature on canning has been made.

The book, "Appertizing"—whose title is coined from the name of the discoverer of the principle of canning—constitutes a veritable "gold mine" of information on commercially canned foods, not only for practical canners, but for students of food technology, health officers, and food regulatory officials, as well. The amount of space allotted to this review will permit only a limited description of the organization and contents of the book.

The text is organized into a number of major sections, the first of which—dealing with historical aspects—is from

the pen of Mrs. Bitting. In this section, comprising some 117 pages, are collected in their original forms historic patents and papers relating to canning dating forward from the time of Appert. This is a unique feature of the book in that no previous publication has brought together in one place, for example, the original papers of Prescott, Underwood, MacPhail, Russell, and Barlow, which in their entirety laid the foundations for the modern science of canned food microbiology.

The remainder of the book is devoted to the canning of foods, the major sections dealing with the packing of fruits, vegetables, specialty products (spaghetti, etc.), milk, meats and allied products, fish and sea foods. The various products are discussed alphabetically within the particular sections into which they fall. Each discussion on any specific canning procedure contains valuable detailed information, consequently it is difficult to indicate here in a general way the nature of the details presented.

However, using corn as a specific example, some of the major items discussed might be described. After covering the botanical position and origin of corn, the varieties commonly used for canning, the early history of corn canning in America and the production figures for corn since 1912, the author first passes to chemical and physical changes in corn during development and after harvesting; then to the U. S. Standards (1935) for sweet corn for canning; and finally to the details of the packing procedure. Other useful points of information are also included such as the Bureau of Agricultural Economics Standards for Cream Style and Whole Grain Corn; Service and Regulatory Announcements affecting canned corn (under the Act of 1906); and common difficulties encountered in canning. This résumé will indicate the thoroughness with which the author treats the technological and practical aspects of his subject.

The major suggestion which might be made for improvement of the text relates to the organization of the index rather than to the contents of the book. The index is not as complete as might be desired in a volume of this size. While alphabetical listing is employed for products included in the various sections on canning procedures, the reader's convenience would have been better served by a more complete cross-indexing of the text, particularly when a specific point of information is desired.

As offered to the reader, however, "Appertizing" should prove a valuable addition to the libraries of persons who deal either intimately or only occasionally with commercially canned foods. It is recommended without hesitation to all workers in the field of public health who have need of a reliable reference text of this character.

F. F. FITZGERALD

Facts About Food—*By S. Henning Belfrage, M.D. New York: Oxford University Press,* 1938. 177 pp. Price, $1.50.

This is a popular little book on diet by an English physician, who writes interestingly and authoritatively about the various functions of food in the body and the best uses of various foodstuffs for well balanced and economical diets. The book is well printed, but has no index. It should be of value to the general reader.

JAMES A. TOBEY

The Health Program in Small Associations—*By Edith M. Gates. New York: Womans Press,* 1936. 57 pp. Price, $.65.

This is a discussion as to the set-up of health programs in small Y.W.C.A.'s It discusses the type of organization that would be advantageous. It has a

section on health education and the type of lectures and projects that are advisable; one on physical education sketching the activities of gymnasium classes and individual work in such activities as swimming, tennis, bowling, tap dancing, and the like; and one on recreation, either tied up with the physical education program, or aside from it. At the end is an 8 page bibliography. CHARLES H. KEENE

Marihuana: America's New Drug Problem—*By Robert P. Walton. Philadelphia: Lippincott,* 1938. 223 pp. Price, $3.00.

This is an authoritative discussion of the scientific uncertainty and scholastic ignorance which surround the resinous exudate of the hemp plant. The author has chosen to call this marihuana, though he does not tell us why. Among several pages of alternative titles, this one is described as "the name given the weed in Mexico and the Latin American countries" (but would the Spanish peoples use that letter h?) and it is derived from "maraguango" meaning any substance producing an intoxication.

The one thing certain about the history of our subject is that hemp was a reasonably common plant in various pre-Christian civilizations. But as soon as one authority has theories regarding its early use another authority seems to disapprove. Creighton thought that the grass ("hashish") on which Nebuchadnezzer fed was hemp, and that the first chapter of Ezekiel was written by a marijuana addict. Most of us would have accepted his suggestion were it not that Dr. W. C. Graham who teaches Old Testament at the University of Chicago finds these theories unconvincing. De Sacy's theory that Assassins were originally hashish eaters has many apologists among the pamphleteers and has been naïvely accepted by the *Encyclopaedia Britannica;* but there are other philologists who doubt.

Some say that marijuana causes addiction. Others say not. Dr. Walton is convinced that "there is a certain degree of addiction when this drug is smoked for an extended period of time." There is no doubt that men commit crimes while under the influence but it is seldom easy to decide whether the crime was planned before taking the drug or was committed without premeditation. The pathology is unknown and even the pharmacology has its doubtful points. For instance 22 c.c. of fluid extract did not kill a 40 lb. dog but 10 c.c. more rapidly injected did do so. No one knows whether the dog died from cannabinol, or alcohol, or precipitated resin. Modestly included in the pharmacological research is an item which on consulting reference number 417 in the bibliography turns out to be work done by the author himself and published in 1938.

Whether the effects of taking hashish are aphrodisiac, whether they are even pleasant, is a matter on which experiences do not accord. Dr. Walton points out that Dumas's famous description of a voluptuous fantasy in The Count of Monte Cristo "has never been incriminated in the development of any hashish addiction." This fact he adduces in support of his thesis that literature has little or no influence on the propagation of this sort of vice. Perhaps there are other readers, like myself, who do not feel themselves seduced by those marble goddesses with their breasts of ice and their burning mouths.

What can be done? Dr. Walton tells how the police in New Orleans have, by arrests and seizures, forced up the price of marijuana cigarettes to 30 or 40 cents each. He believes they can be made even more expensive. But he is not over-optimistic: ". . . the vice still

flourishes in every country in which it has once been established. This is despite the fact that, in some of these countries, attempts have been made for almost 1,000 years to stamp out the practice." J. ROSSLYN EARP

Health Insurance with Medical Care: The British Experience—*By Douglass W. Orr, M.D., and Jean Walker Orr. New York: Macmillan,* 1938. 271 pp. Price, $2.50.

Out of the plentiful accounts on the British Health Insurance system, which include elaborate reports of two Royal Commissions and numerous technical documents, comes the Orr book, the first thoroughly readable and enjoyable account of the subject.

At the outset they states that "The English scheme is neither . . . centralized nor . . . simple." With the National Health Insurance, the main theme, they clearly weave into the pattern the important services such as public medical services, public assistance medical care, and voluntary contributory insurance that comprise the English health insurance system.

According to the Orrs, public health work in the medical inspection of school children and maternity and child welfare work, marked one of the major steps in the drive for health legislation in England. It has been pointed out that National Health Insurance is restricted in scope through its failure to provide specialist and hospital services, and care for dependents of insured persons. Nevertheless, the scope of public health work, which also includes many welfare activities, is such that "theoretically no one in England need go without medical care." These services are further implemented by numerous medical agencies, so that practically 40 per cent of the entire population and 80 per cent of gainfully employed persons are covered.

The network of medical services available to the English people is described succinctly and well. The Orrs' belief in the effectiveness of these services is perhaps too rosy when one considers health conditions in the slums of London, Manchester, and Birmingham. Their sample of physicians' incomes is equally idealized.

In their desire to learn what the English people think of health insurance, the Orrs went directly to the "producers"—the practising physicians, officers of the British Medical Association, and government officials—and the "consumers" of medical services. There is a unanimity of approval in both groups, even that the services should be extended. In light of the repeated assertions on the part of the American Medical Association to the contrary, this testimony is significant.

JOSEPH HIRSH

The Professional Secret in Social Work—*By Rev. Walter McGuinn, S.J., Ph.D. Boston: Boston College School of Social Work,* 1938. 34 pp.

The author presents a framework of moral principles calculated to guide the social worker in the solution of problems rooted in the social work secret. Consideration is given to natural, promised, and entrusted secrets, including the professional character of relationships with clients. Among the several conclusions, it is indicated that the obligation ceases when the preservation would cause serious harm to the community, and the Social Work Secret must be revealed when the preservation would jeopardize public peace, public health, public morals, or public welfare. But in solving a concrete case of conflicting rights and duties, the benefit of the doubt to the client must call for a preservation of the secret unless there is a clear necessity of making the revelation. IRA V. HISCOCK

BOOKS RECEIVED

THE NATURAL HISTORY OF POPULATION. By Raymond Pearl. New York: Oxford, 1939. 416 pp. Price, $3.50.

LANDMARKS IN MEDICINE. Laity Lectures of the New York Academy of Medicine. New York: Appleton-Century, 1939. 347 pp. Price, $2.00.

HEALTH AT FIFTY. Edited by Dr. William H. Robey. Cambridge: Harvard University Press, 1939. 299 pp. Price, $3.00.

SOILLESS GROWTH OF PLANTS. By Carleton Ellis and Miller W. Swaney. New York: Reinhold, 1938. 155 pp. Price, $2.75.

ECONOMICAL ADMINISTRATION OF HEALTH INSURANCE BENEFITS. Washington: International Labor Office, 1938. 332 pp. Price, $1.75.

EVALUATION OF THE INDUSTRIAL HYGIENE PROBLEM IN THE STATE OF TEXAS. By George W. Cox. Austin: Texas State Department of Health, 1939. 46 pp.

PRINCIPLES OF HEALTH EDUCATION. By C. E. Turner. 2nd ed. New York: Heath, 1939. 335 pp. Price, $2.00.

TAKING CARE OF THE FAMILY'S HEALTH. A Teaching Guide for Rural Classes. By Elma Rood and Gertrude Lingham. Madison College, Tenn. Rural Press, 1938. Two book edition in paper, $5.00. Two book edition in flexible fabricoid, $6.50.

THE LIFE OF CHEVALIER JACKSON. An Autobiography. New York: Macmillan, 1939. 229 pp. Price, $3.50.

AN INTRODUCTION TO MODERN STATISTICAL METHODS. By Paul R. Rider. New York: Wiley, 1939. 220 pp. Price, $2.75.

SOCIAL WORK YEAR BOOK, 1939. Russell K. Kurtz, Editor. Fifth issue. New York: Russell Sage, 1939. 730 pp. Price, $3.50.

PHYSICAL EDUCATION IN THE ELEMENTARY GRADES. By Strong Hinman. New York: Prentice-Hall, 1939. 523 pp. Price, $2.00.

THE ADMINISTRATION OF HIGH SCHOOL ATHLETICS. By Charles E. Forsythe. New York: Prentice-Hall, 1939. 413 pp. Price, $2.00.

POPULATION, RACE AND EUGENICS. By Morris Siegel. Published by the author, Hamilton, Ontario, 1939. 206 pp. Price, $3.00.

OCCUPATIONAL DISEASE SYMPOSIUM. Northwestern University Medical School. Department of Industrial Medicine. Chicago, 1939. 99 pp. Price, $3.00.

SURVEY OF NATIONAL NUTRITION POLICIES 1937–1938. League of Nations. New York: Columbia University Press, 1938. 120 pp. Price, $.60.

PROCEEDINGS OF CONFERENCE ON BETTER CARE FOR MOTHERS AND BABIES, WASHINGTON, D. C. January 17 and 18, 1938. Washington: Government Printing Office, 1938. 171 pp. Price, $.20.

PLAY SPACE IN NEW NEIGHBORHOODS. A Committee Report on Standards of Outdoor Recreation Areas in Housing Developments. New York; National Recreation Association, 1939. 23 pp. Price, $.25.

FUNDAMENTAL PRINCIPLES OF BACTERIOLOGY WITH LABORATORY EXERCISES. A. J. Salle. New York: McGraw-Hill, 1939. 679 pp. Price, $4.00.

YOUR HEALTH DRAMATIZED. (Selected Radio Scripts.) By W. W. Bauer and Leslie Edgley. New York: Dutton, 1939. 528 pp. Price, $2.25.

ADEQUATE FAMILY FOOD ALLOWANCES AND HOW TO CALCULATE THEM. Prepared by the Social Welfare and Public Health Department of the American Home Economics Association with a representative from the American Dietetic Association. New York: Family Welfare Association of America, 1939. 35 pp. Price, $.40.

VITAMINS AND VITAMIN DEFICIENCIES. By Leslie J. Harris. Vol. I. Introductory and Historical Vitamin B, and Beri-Beri. Philadelphia: Blakiston, 1938. 204 pp. Price, $2.50.

ECONOMIC ASPECTS OF MEDICAL SERVICES. By Paul A. Dodd and E. F. Penrose. Washington: Graphic Arts Press, 1939. 499 pp. Price, $3.75.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Dental Abnormalities and Syphilis—Are "Hutchinson's teeth" pathognomonic of congenital syphilis? Are defects of teeth other than the upper incisors equally suggestive? Can defects of enamel from other causes than syphilis be clearly differentiated? Answers to these questions are sought for, and some good photographs are included which will be of interest.

ANDERSON, B. G. Dental Defects and Congenital Syphilis. Am. J. Dis. Child. 57, 1:53 (Jan.), 1939.

American Failures and Successes—As told to an international group in Scotland, our recently adopted National Health Program sounds most promising. At any rate it will do American sanitarians good to look at the picture of public health administration a-la-U. S. A., as displayed for the edification of others.

BAUMGARTNER, L. Recent Developments in Public Health in U. S. A. Medical Woman's J. 46, 1:21 (Jan.), 1939.

Childhood Conditions Causing Deafness — Experience is reported which leads to the conclusion that if school children in the primary grades were examined with a nasopharyngoscope at least once each year and those with lymphoid tissue about the eustacean tubes were treated with radiation, half the deafness in the next generation could be prevented.

CROWE, S. J., and BAYLOR, J. W. The Prevention of Deafness. J.A.M.A. 112, 7:586 (Feb. 18), 1939.

Do Nurses Influence Health Behavior?—We say, glibly enough, that the public health nurse is the teacher of hygiene in the home, the health educator *par excellence*, the mentor of the family in matters of household hygiene. But is she? Is she equipped from the standpoints of adult education, applied psychology, or physiology to meet all our assumptions? To find out, competent stenographers were sent into the homes with the nurse to record what transpired. How, and how not, to teach are pointedly illustrated by some swell snatches of conversation between nurse and client. They must be read in their entirety.

DERRYBERRY, M. How May the Nurse Become a Better Teacher? Health Officer. 3, 9:253 (Jan.), 1939.

A Con Is Heard—Our British cousins, who delight in understatement, would characterize this as a rather forceful criticism of the recently proposed National Health Program. The author asserts that the public health services are not only not grossly inadequate, but that, on the contrary, we are at the very zenith of progress toward national health; that the sick poor receive a high quality of medical care; and that health departments should have nothing to do with services for the indigent sick. This paper is upon one of those topics about which each will want to make his own annotation.

EMERSON, HAVEN. Signs of the Times in Public Health. J.A.M.A. 112, 8:737 (Feb. 25), 1939.

Body Build and Birth Canals—Health workers in the field of maternal and infant hygiene will find much of value in these pelvimetric studies which demonstrate that a properly "normal" female pelvis occurs in less than a third of the women studied. The rest bore an embarrassing resemblance to the primitive pelvises supposed to be found only in Hottentots and Bushwomen.

Others than hygienists will be interested in the study because it shows how uncritically we take for granted any misinformation that has become bearded with moss.

GRUELICH, W. W. A Study of Pelvic Type. J.A.M.A., 112, 6:485 (Feb. 11), 1939.

Is a Man as Old as His Arteries?—This paper is notable as an attempt to put to scientific test a hygienic "old saw." Let us hope that this effort will stimulate a whole epidemic of similar studies. "A man is as old as his arteries" is the overworked axiom subject to scrutiny. The tensile strength of the aortas of young and old rats and of rats subjected to alcohol and other health hazards was determined. It would not be fair to retail all the findings here, for the paper should be read, if only for its pioneering values.

HUME, J. F. The Tensility of the Rat's Aorta as Influenced by Age, Environment, Temperature, and Certain Toxic Substances. Am. J. Hyg., 29, 1:11 (Jan.), 1939.

Mental Health in Child Hygiene—Reported upon is a 2 year study in preparing nurses to help mothers understand child development, and to help them anticipate and prevent undesired mental habits in their children (not to treat existing mental problems). An adviser in parent-child relationships spends a day or two in the field with each child hygiene nurse, after the nurse has become familiar with the principles of mental hygiene.

LEVY, J. An Experiment in Training Nurses to Help Mothers in Preventive Mental Hygiene. Ment. Hyg., 23, 1:99 (Jan.), 1939.

Pneumonia in the North—In this series of Canadian papers upon epidemiology and treatment of pneumonia there seems to be no marked divergence from the findings reported on this side of the border, but public health administrators will find some useful comparisons here with local experience.

MCKAY, A. L., *et al.* Epidemiology and Etiology of Pneumonia (and four other papers). Canad. Pub. Health J., 30, 2:69 (Feb.), 1939.

A Hundred Million Dollar Industry—In this excellent statement of the problem of caring for the mentally sick, which is intended for the educated laity, health workers will find much of interest. A plea is made for more mental hygiene in our new National Health Program.

OVERHOLSER, W. Mental Hygiene—a Challenge. Sci. Month., 48, 3:203 (Mar.), 1939.

Metabolic Disturbances and the Wassermann — False-doubtful and false-positive results are obtained from the sera of non-syphilitic but tuberculous blood donors, so it is evident that tuberculosis toxemia *may* add a confusing factor to syphilis serology. It is evident from this study, however, that it need never create a major difficulty in serodiagnosis.

PARRAN, T., and EVERSON, K. The Effect of Tuberculosis on the Serological Reactions for Syphilis. Am. Rev. Tuberc. 39, 11:1 (Jan.), 1939.

Skin Cancers Versus Internal—It appears that sailors in the U. S. Navy have a higher percentage of exposed cancers (due to the skin irritants, sun, salt water, and wind) and fewer internal cancers than the comparable civil population. If irritation chooses the organ to be attacked, providing the body is disposed, it might be possible to change the distribution of cancer in the direction of accessibility of treatment. Perhaps the well known hazard of sun and salt water is really a boon to the sailor.

PELLER, S., and STEPHENSON, C. S. Cancer in the United States Navy. Am. J. Hyg. 29, 1:34 (Jan.), 1939.

Children's Food — Scandinavians took a great step in school child nutrition when, instead of a hot noonday

luncheon, they were persuaded to substitute the now world-famous "Oslo Breakfast," served first thing in the morning. It consists of whole wheat or rye bread, cheese, milk, reinforced margarine, and half an apple, or substitute. In the article is a great deal about the vitamins, and calcium and iron. Concluding is a covenant of faith.

ROSE, M. S. Nutrition and the Health of the School Child. Am. J. Dietetic Assoc., 15, 2:63 (Feb.), 1939.

Protecting Students in Institutions—Instead of being almost universal, the incidence of tuberculous infection in our present younger generation is less than half. The most exposed groups are medical students and nurses in training. Much of these infections could be prevented and the institutions should be obligated to protect these young people.

SOPER, W. B., and AMBERSON, J. B. Pulmonary Tuberculosis in Young Adults. Am. Rev. Tuberc., 39, 1:9 (Jan.), 1939.

Health for 78,000 Farm Families—More than 600,000 low-income farm families receive financial aid from the Farm Security Administration. On the assumption that loans will be repaid more readily if borrowers are well, the federal agency has arranged through local medical societies for prepaid medical services. The scheme has been extended over 13 states and agreements have been reached with state medical associations in 7 others.

WILLIAMS, R. C. Medical Care Plans for Low-Income Farm Families. Health Officer. 3, 9:245 (Jan.), 1939.

Births and the Wee Sma' Hours—Stillbirths and neonatal mortality rates are higher among children born between noon and midnight than during the other half of the day: between 3 and 6 in the afternoon is the worst time. Operative deliveries are highest then, too.

YERUSHALMY, J. Hour of Birth and Stillbirth and Neonatal Mortality Rates. Child Development. 9, 4:373 (Dec.), 1938.

ASSOCIATION NEWS

SIXTY-EIGHTH ANNUAL MEETING

Pittsburgh, Pa.

October 17–20, 1939

HEADQUARTERS — HOTEL WILLIAM PENN

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Ernest L. Berry, M.D., Box 343, Buhl, Idaho, Administrator, South Central Unit

Charles B. Billington, M.D., C.P.H., P. O. Box 445, Richmond, Ky., Madison County Health Officer

Hugh G. Clark, M.D., County Health Dept., La Fayette, Ala., Chambers County Health Officer

Valentine S. Duff, 8 Smith Rd., Hingham, Mass., Executive Health Officer

Littleton H. Eubanks, M.D., Lexington, Miss., Holmes County Health Officer

Thomas K. Fairey, M.D., 17 Edisto St., Johnston, S. C., County Health Officer

Robert S. Genduso, 654 Broadway, West New York, N. J., Health Officer

William P. Harrell, Jr., M.D., Box 332, Jonesboro, Ark., Craighead County Health Officer

Paul J. Jakmauh, M.D., 449 Eliot St., Milton, Mass., State Commissioner of Public Health

Festus E. Kitchens, M.D., 2506 Ponce de Leon, Coral Gables, Fla., Health Officer

C. A. Lusk, M.D., Walton Bank Bldg., Butler, Mo., Deputy State Health Commissioner for Bates County

Paul G. Martel, City Hall, Chicopee, Mass., Agent, Health Dept.

John G. McNiel, M.D., Christiansburg, Va., Montgomery County Health Officer

Lewis A. Nimmons, M.D., Bishopville, S. C., County Health Officer

Herman W. Schweizer, M.D., Fort Hall Agency, Fort Hall, Idaho, Agency Physician, U. S. Indian Service

Richard N. Sherwin, M.D., Court House, Hillsboro, Ore., Washington County Health Officer

Leigh A. Simpson, M.D., 11 S. 3rd, Fulton, N. Y., Health Officer

Clarence G. Thompson, M.D., Disco Bldg., Norwich, Conn., Health Officer

Francis B. Wishart, M.D., D.P.H., 21 George St., Campbellton, N. B., Canada, District Medical Health Officer

George C. Wood, M.D., Ft. Belknap Hospital, Harlem, Mont., Senior Physician, U. S. Indian Service

Jack Woodward, M.D., D.D.S., Hoopa, Calif., Senior Physician, U. S. Indian Service

Laboratory Section

Michel Ciuca, M.D., 8 Ave. de France, Geneva, Switzerland, Professor of Bacteriology, University of Iasi, Iasi, Roumania —on leave

Sidney C. Dalrymple, M.D., Newton Hospital, Newton Lower Falls, Mass.

Victor H. Dietz, D.D.S., University of Illinois, Chicago, Ill.

Leon P. Eisman, 353 Massachusetts Ave., Cambridge, Mass., Student

Lloyd R. Jones, Ph.D., 1402 S. Grand Ave., St. Louis, Mo., Assistant Professor of Bacteriology and Chairman, Dept. of Bacteriology, St. Louis University School of Medicine

Cornelius B. Kelly, Jr., 65 W. Sunrise Highway, Freeport, N. Y., Assistant Sanitary Chemist, N. Y. Conservation Dept., Bureau of Marine Fisheries

Emily E. McComb, Ph.D., South St., Suffield, Conn.

Frances Mills, State Hospital for Epileptics, Wahjamega, Mich., Bacteriologist
Lucy J. Watt, Western College, Oxford, O., Teacher of Bacteriology

Vital Statistics Section

Huldah Bancroft, 1820 E. Monument St., Baltimore, Md., Instructor in Biometrics, Western Reserve University Medical School —on leave
Clyde A. Bridger, 1306½ N. 6 St., Boise, Idaho, Vital Statistician, State Division of Public Health
Harry F. Downes, Court House, Jersey City, N. J., Chief Statistician, Hudson County Board of Health
Alfhild Vold, 1304 Washtenaw Terrace, Ann Arbor, Mich., Student

Public Health Engineering Section

Thomas P. Anderson, 172 N. Broughton St., Orangeburg, S. C., Sanitarian, County Health Dept.
John Andrews, 125 Brooks Ave., Raleigh, N. C., Assistant Engineer, State Board of Health
Jacob M. Beckerman, 425 S. Division, Ann Arbor, Mich., Student
Floyd L. Berry, City Hall, Dalton, Ga., Sanitarian, State Dept. of Public Health
Bruce Brownson, City Hall, Grand Junction, Colo., Chief, Dept. of Health and Parks
Sidney H. Gold, 269 Winthrop Ave., New Haven, Conn., Student
Julius C. Hedden, Box 345, Laurens, S. C., Sanitarian, District Health Dept.
Alvin F. Meyer, Jr., Rm. 354, Virginia Military Institute. Lexington, Va., Student Sanitary Engineer
Ralph J. Van Derwerker, Court House Annex, Elizabeth, N. J., Supt., Union County Mosquito Commission
Noall E. Walter, P. O. Box 483, Provo, Utah, Sanitarian, State Board of Health

Industrial Hygiene Section

Murray B. Ferderber, M.D., 5722 Fifth Ave., Pittsburgh, Pa., Research Fellow, Dept. of Industrial Hygiene, University of Pittsburgh
Kenneth E. Markuson, M.D., C.P.H., Herman Kiefer Hospital, Detroit, Mich., Assistant Director, Bureau of Industrial Hygiene, State Dept. of Health
Carl M. Peterson, M.D., 535 N. Dearborn St., Chicago, Ill., Secretary, Council on Industrial Health, American Medical Assn.

Food and Nutrition Section

William B. Esselen, Jr., Ph.D., Owens-Illinois Glass Co., Toledo, O., Food and Nutrition Research Worker
B. Alene Theisner, 704 New Center Bldg., Detroit, Mich., Director, Dairy Council of Detroit

Public Health Education Section

Rosabel Burch, 14 W. 49 St., New York, N. Y., Health and Safety Adviser, Girl Scouts, Inc.
Agnes M. English, 81 Howe St., New Haven, Conn., Student
Mary L. Heaton, 70 Dubois St., Newburgh, N. Y., Executive Secretary, Newburgh Public Health and Tuberculosis Assn.
Leonard W. Hines, M.D., 816–4 St., Santa Rosa, Calif.
Wilhelm O. Johnson, 145 State St., Springfield, Mass., Executive Secretary, Hampden County Tuberculosis and Public Health Assn.
Stella O. Kline, Rm. 801, Court House, Elizabeth, N. J., Executive Secretary, Union County Tuberculosis League
Inez G. Peyton, 200 E. Laurel, Fort Collins, Colo., Supervisor of Health Education, Public Schools
Thurman M. Rogers, M.D., 229 Main St., Sterling, Colo., Chairman, Public Health Committee, State Junior Chamber of Commerce
Gretta Wren, 14 State St., Ossining, N. Y.
Herbert L. Wright, M.D., Dr.P.H., City Hall, Okemah, Okla., Director, Okfuskee County Health Unit

Public Health Nursing Section

Ada M. Beerstecher, 25 E. Athens Ave., Ardmore, Pa., Executive Secretary, Community Health and Civic Assn.
Catherine E. Denning, 2512 Koppers Bldg., Pittsburgh, Pa., Local Field Supervisor, Western Pennsylvania Nursing Area, Metropolitan Life Insurance Co.
Mary J. Fee, 1516 W. Church St., Champaign, Ill., County Public Health Nurse
Lily Hagerman, R.N., 130 State Capitol Bldg., Salt Lake City, Utah, Director, Public Health Nursing, State Board of Health
Heather Kilpatrick, P. O. Box 221, Duncan, B. C., Canada, Supervisor, Cowichan Health Centre
Anne H. McCabe, 9 Cobb Ave., White Plains, N. Y., Director, Division of Public Health Nursing, Westchester County Dept. of Health
Edith F. McManus, Box 305, Lamar, Colo., Prowers County Public Health Nurse
Eleanor Palmquist, 1445 C St., Lincoln, Nebr., Consultant for Public Health Nurses, State Dept. of Health
Marguerite Prindiville, 13 Lebanon Rd., Scarsdale, N. Y., Supervisor, Henry St.

Visiting Nurse Service

Talitha M. Ritterbusch, District Health Unit, Dexter, Mo., District Health Nurse

Hazel I. Ross, Hugoton, Kans., Public Health Nurse

Mary B. Willeford, Ph.D., R.N., 2085 Sacramento St., San Francisco, Calif., Nurse Consultant in Maternal and Child Hygiene, State Dept. of Public Health

Epidemiology Section

Alfreda N. Bica, M.D., 55 Shattuck St., Boston, Mass., Health Officer of Brazil—on leave

A. W. Deem, D.V.M., Colorado State College, Fort Collins, Colo., Assistant Professor of Pathology and Bacteriology

Walter C. Earle, M.D., Apartado 11, Cuernavaca, Morelos, Mexico, Field Director, International Health Division, Rockefeller Foundation

John H. Fountain, M.D., 1636 Hudson St., Denver, Colo., Acting Director of Tuberculosis Control, State Dept. of Public Health

Howard D. Smith, M.D., 124 E. 2 St., Salida, Colo., City Physician

Unaffiliated

Warren W. Currens, Box 268, Little Falls, N. J., Passaic Valley Water Commission

Florence Knapp, P. O. Box 143, Fort Bidwell, Calif., Staff Nurse, U. S. Indian Service

Everett J. Olenick, M.D., 715 Forest Ave., Ann Arbor, Mich., Trainee, Illinois Dept. of Public Health

Joseph P. Ritenour, M.D., 3 Old Main, State College, Pa., Director, College Health Service

Florence G. Sprague, Fort Bidwell Hospital, Fort Bidwell, Calif., Health Nurse, U. S. Indian Service

DECEASED MEMBERS

V. H. Bassett, M.D., Savannah, Ga., Elected Member 1912, Fellow 1923

J. Treichler Butz, M.D., D.D.S., Allentown, Pa., Elected Member 1918, Fellow 1922, Life Member 1934

W. J. V. Deacon, M.D., East Lansing, Mich., Elected Member 1912, Fellow 1922

William R. Tracey, Ottawa, Ont., Canada, Elected Member 1935, Fellow 1937

Joseph T. Brennan, M.D., Independence, Mo., Elected Member 1935

Pearson D. Brooker, D.D.S., Columbia, S. C., Elected Member 1938

William H. Doolittle, Bethlehem, Conn., Elected Member 1929

C. A. Earle, M.D., Desplaines, Ill., Elected Member 1920

Martha O. Eckford, Sc.D., Columbus, Miss., Elected Member 1930

Frederick L. Fenno, M.D., New Orleans, La., Elected Member 1927

Thomas M. Fly, M.D., Little Rock, Ark., Elected Member 1936

Herman S. Gove, M.D., Jefferson City, Mo., Elected Member 1934

Leigh I. Holdredge, Oneonta, N. Y., Elected Member 1937

William C. Hunsicker, M.D., Philadelphia, Pa., Elected Member 1938

Daniel S. Latham, M.D., Auburn, R. I., Elected Member 1926

Samuel T. Lindsay, M.D., Rochester, N. Y., Elected Member 1934

Earl B. McKinley, M.D., Washington, D. C., Elected Member 1935

James J. Minot, M.D., Boston, Mass., Elected Member 1920

Zula L. Powell, R.N., Fort Worth, Tex., Elected Member 1928

Joseph C. Saile, M.D., Bloomfield, N. J., Elected Member 1920

Thomas J. Stanton, Wichita, Kans., Elected Member 1930

Lucy P. Sutton, M.D., New York, N. Y., Elected Member 1936

William A. Taltavell, M.D., Redlands, Calif., Elected Member 1919

L. W. Hutchcroft, Madison, Wis., Elected Member 1926

Barton T. McDowell, Bristol Centre, N. Y., Elected Member 1927

Rolla B. Stafford, M.D., Junction City, Kans., Elected Member 1935

Pearl C. West, M.D., Sedro Woolley, Wash., Elected Member 1927

EMPLOYMENT SERVICE

The Employment Service will register persons qualified in the public health field without charge.

Replies to these advertisements, identifying clearly the key number on the envelope, should be addressed to the American Public Health Association, 50 West 50th Street, New York, N. Y.

Positions Available

The U. S. Civil Service Commission announces examinations for:

Associate Public Health Nursing Consultant, $3,200 a year

Assistant Public Health Nursing Consultant, $2,600 a year, with U. S. Public Health Service, Treasury Dept.

and

Associate Medical Officer, $3,200 a year (General Practice) with Veterans' Administration.

Applications must be on file not later than April 10, 1939 or April 13 for western states. Forms may be procured from any first-class post office or from the Civil Service Commission, Washington, D. C.

There is a vacancy in the position of assistant professor in the Department of Bacteriology, Hygiene and Preventive Medicine at Baylor University College of Medicine, Dallas, Texas. A man primarily trained as a bacteriologist, also in general public health who likes to teach, is sought for this position. Applicants may communicate with Hardy A. Kemp, M.D., Professor, relating experience and salary desired.

Positions Wanted

HEALTH OFFICERS

Experienced public health executive; 10 years as full-time county health officer; 4 years as state commissioner of health, wishes administrative position of responsibility. **A403**

Unusually well qualified and experienced administrator, M.D., Johns Hopkins; M.P.H., Harvard; with broad experience in administering programs of medical care, is available. **A404**

Physician, M.D., Class A medical school; M.S.P.H., University of Michigan, 1937; now serving as district state health officer, seeks full-time city or city-county administrative position. **A367**

Well qualified physician, with C.P.H. from Johns Hopkins; experienced as school physician and in college teaching, will consider city or county administrative position or teaching and student health service. **A383**

Physician, M.D., Vanderbilt University; Dr.P.H., Johns Hopkins; experienced as epidemiologist, health officer and professor of preventive medicine, seeks position as administrator or epidemiologist. **A397**

Physician, aged 30; M.D., University of Illinois; C.P.H., University of California; experienced as instructor in medicine and director of state Division of Epidemiology, desires position in communicable disease control or administration. **A399**

Physician, M.D., C.P.H., two years' experience as district health officer; prefers to do venereal disease control work or epidemiology. **A345**

Well qualified physician, completing course in public health at the University of Michigan, with special interests in tuberculosis and venereal disease control, seeks a responsible appointment. Excellent references. **A406**

Physician, M.D., University of Minnesota, 1927; M.S., Columbia University, 1937; special training in tuberculosis and venereal disease, and administrative experience in CCC camp, wishes position as health officer. **A407**

HEALTH EDUCATION

Health educator with excellent background of teaching experience in schools; M.S.P.H. from the University of Michigan in June; wishes a position where skill with educational sound film projection and other recognized technics will be appreciated. **H405**

Experienced director of health education, R.N. and college graduate, with excellent references, will consider health education or promotional position in the East. **H408**

LABORATORY

Physician, M.D., Northwestern; Dr.P.H., Johns Hopkins; broad experience in laboratory, teaching and epidemiological fields, will consider temporary position for summer, beginning in April, preferably in parasitology. **M293**

Physician, C.P.H., Harvard-Technology; experienced as bacteriologist and pathologist and director of state laboratories, desires position. **L208**

Experienced bacteriologist, Ph.D., 1934, with teaching in research background, particularly in relation to sanitation, seeks position as director of laboratory or teacher. **L370**

NEWS FROM THE FIELD

NATIONAL CONFERENCE FOR COÖPERATION IN SCHOOL HEALTH EDUCATION

RECOGNITION of the opportunities for developing more comprehensive and better coördinated programs of school health education throughout the United States culminated in a 2 day conference of some 70 delegates of 40 national organizations at the Rockefeller Center, New York, in November, 1938. Preliminary plans for the conference were developed by representatives of the National Education Association, the U. S. Public Health Service, the American Social Hygiene Association, and the National Health Council. Reports from delegates gave a colorful picture of the variety of ways that different organizations operate, of the wealth of diversified services, of the many groups served, and of the difficulties which hinder full attainment of objectives.

Members of the conference stressed the importance of health education in the entire community and the desirability of interrelating school health education and public health education as parts of that whole. There are many national health and educational agencies already well organized for service in this field. From this preliminary conference there resulted a plan for the organization of a National Conference for Coöperation in School Health Education "To meet more effectively the recognized needs of the schools . . . for making the resources of those agencies more readily available through coördination of efforts."

An executive committee is in the process of organization, and operating codes have been tentatively drawn up for the gudiance of the executive committee and of the National Conference composed of representatives selected by the national agencies represented at the first Conference and others to be added. These plans will be submitted in the near future for the consideration of the participating agencies. The chairman of the Conference during these stages of organization is Professor Ira V. Hiscock of Yale University, President of the National Health Council. The secretary is N. P. Neilson, Ph.D., Field Secretary of the American Association for Health, Physical Education and Recreation of the National Education Association.

SOUTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION ELECTS OFFICERS

AT its recent Annual Meeting the Southern California Public Health Association elected the following officers:

President—Wilton L. Halverson, M.D., Pasadena
President-elect—C. Morley Sellery, M.D., Los Angeles
First Vice-President—Hyman I. Vener, M.D., Los Angeles
Second Vice-President—Charles R. Wylie, M.D., Ventura
Secretary-Treasurer—R. L. Kaufman, M.D., Riverside

BIRTH CONTROL AGENCIES MERGE

THE American Birth Control League and the Birth Control Clinical Research Bureau have merged to form the Birth Control Federation of America, following ratification by the League of the action of a joint committee presented at its 18th annual meeting in New York on January 18.

Dr. Richard N. Pierson, of New York, Chairman of the Joint Committee, was elected temporary President of the new Federation, and Mrs. Margaret Sanger was elected Honorary Chairman of the Board.

HYGIENE OF HOUSING COMMITTEE

THE regular spring meeting of the Association Committee on the Hygiene of Housing, under the Chairmanship of Professor C.-E. A. Winslow of Yale University, was held as a round table under the auspices of the Milbank Memorial Fund at the New York Academy of Medicine, March 23 and 24. On March 25 the Committee continued its discussion in New Haven at Yale University and at the Pierce Laboratory of Hygiene.

In addition to the 18 members of the Committee, and the staff attached to the Committee, other participants were W. H. Purnell, in charge of TVA research in house heating; Dr. Svend Riemer, a Swedish-German sociologist who conducted studies in Stockholm on family living habits as affected by the plan of the dwelling; L. M. Graves, M.D., Health Officer of Memphis; Henry F. Vaughan, Dr.P.H., Health Officer of Detroit; Coleman Woodbury, Director of the National Association of Housing Officials; J. I. Linde, M.D., Health Officer of New Haven; Huntington Williams, M.D., Commissioner of Health of Baltimore; Dr. Abraham Goldfeld, Director of the Lavanburg Foundation, and Mr. B. M. Pettit, Director of the New Haven Housing Authority.

THE WANGER HEALTH BILL

THE Wanger health bill, which has been referred to the Senate Committee on Education and Labor, is having the consideration of Senator Elbert D. Thomas of Utah, who has sent copies of the bill to all administrative agencies, asking for comments.

It is understood that hearings will be scheduled when these federal agencies reply, and it is reported that Senator Thomas will conduct the hearings himself before the whole Committee, and is not planning to appoint a sub-committee.

The Chairman is reported to be a scholar of some distinction, holding doctorates at four universities, and the Senate Committee on Education and Labor is an unusually able and socially minded group, who will give the National Health Program bill a sympathetic hearing. Other members of the Committee are: Senators David I. Walsh, James V. Murray, Vic Donahey, Rush D. Holt, Claude Pepper, Allen J. Ellender, Josh Lee, Lister Hill, William E. Borah, Robert M. LaFollette, Jr., James J. Davis, and Robert A. Taft.

NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION ELECTS OFFICERS

THE following officers for the year 1939 were elected by the Northern California Public Health Association at its annual meeting held on February 25th:

President—Louis Olsen, Palo Alto
President-elect—I. O. Church, M.D. Oakland
Vice-President—A. Frank Brewer, M.D., Fairfield
Secretary—Miss Margaret Blee, Berkeley
Treasurer—Miss Helen Hartley, Stockton
Representative on A.P.H.A. Governing Council—Guy S. Millberry, D.D.S., San Francisco
Alternate—Fred T. Foard, M.D., San Francisco

WESTERN UTAH TO HAVE PUBLIC HEALTH NURSING SERVICE

ARRANGEMENTS have been completed for a public health nursing service to be established in the Goshute Area in western Utah. The service will be financed by three agencies: Tooele County, Utah; the Utah State Board of Health; and the U. S. Indian Service—each paying one-third of the total cost.

Owing to the geographic isolation of this area, medical services have been very meager in the past. The nearest physician is about 100 miles from the center of the area, and the nearest hospital is at Ely, Nevada.

DECLARATION OF THE BALKAN MEDICAL UNION

THE Balkan Medical Union, in session at Istanbul (December, 1938),

having taken into consideration the terrible sufferings which a war will bring upon the civil population of open towns, together with the total lack of any adequate means of protection,

and having discovered that even in its restricted form the project of "sanitary towns" has not yet been adopted, and that all efforts made to protect civilians against chemical warfare have till now remained as proposals only, and that even the protocol prohibiting the use of asphyxiating gas has not yet been ratified by all nations,

has therefore decided to address itself to doctors of every nation with an appeal to take active measures and to fulfil this professional and humanitarian duty of awakening and stirring public opinion.

The Balkan Medical Union believes that only enlightened international opinion can make plain the imminence of the danger and the proved uselessness, even for the victor, of these terrible atrocities, and can thus lead to effective action.

The immutable truth that hate breeds only hate, and atrocity breeds vengeance must be impressed on everyone.

UNION MÉDICALE BALKANIQUE
22, Peyikhane caddesi, Istanbul

THE PROFESSIONAL CLUB—NEW YORK WORLD'S FAIR

THE Professional Club, an incorporated organization, will mark the first time in any international exposition that physicians and public health workers will occupy club quarters especially reserved for their use.

The Professional Club is to occupy an area of 5,000 square feet on the main floor of the exhibit building, with a main entrance from the garden between the science and medical wings of the building, and another from the Hall of Man. Its lounge, designed by Franklyn Fischer, is a wide, kidney-shaped chamber, ultra-modern in its decoration and furnishings, and equipped with a bar. Around the long arc of the lounge there are to be glassed-in cases in which sponsors of exhibits in the Hall of Medical Science may make displays of their products.

Membership in the Professional Club is open to all accredited members of the American Medical Association and the American Public Health Association. All told, 300,000 members of national organizations in the medical and public health field will be eligible for professional membership in the club. In addition to physicians and surgeons, membership has been extended to dentists, health workers, pharmacists, veterinarians and nurses. Professional memberships will carry no dues, and the facilities of the club will be open only to professional members and accredited representatives of participating organizations whose financial support made possible educational exhibits in the building.

WEST VIRGINIA JOINS THE PROCESSION

ON February 27, West Virginia became the 11th state passing a measure which requires a doctor's certificate showing that neither applicant for a marriage license has syphilis in an infectious stage. The law goes into effect in 90 days.

It was sponsored by the West Virginia State Department of Health and endorsed by the Federation of Women's Clubs as well as the State Medical Society, State Nursing groups, State Conference of Social Work and the State Parent-Teachers Association. The bill is stated to have been opposed by a lobby of taxi-cab drivers and clergymen from West Virginia's Gretna Green.

1938 HEALTH CONSERVATION CONTESTS NEAR COMPLETION

THE Grading Committee will meet on April 12, to decide the awards to be given for the 1938 City Health Conservation Contest, the Rural Health Contest in both the United States and Canada, and the special competitions for programs designed to combat tuberculosis and syphilis. This year completes the tenth annual city contest, and the fifth rural contest.

Carl E. Buck, Dr.P.H., has stated that these annual health contests, conducted by the United States Chamber of Commerce in coöperation with the American Public Health Association, constitute the most effective tool thus far devised for stimulating active and intelligent lay interest in the furtherance of sound health protection and promotion services throughout the country. While the returns are still incomplete, it is certain that the 1938 results will be considerably in advance of those of preceding years. It has been estimated that the increase in effective participation in the rural counties will amount to approximately 40 per cent over the preceding year. The public press will carry the announcement of this year's reports on or about April 18.

GOVERNMENTAL INDUSTRIAL HYGIENISTS CONFERENCE

THE Second Annual Conference of Governmental Industrial Hygienists will take place immediately following the State and Territorial Health Officers meeting, and will extend over a 3 day period, April 26–28. It will be held in the Public Health Service auditorium, Washington, D. C.

PERSONALS

Central States

WILLIAM E. BUNNEY, PH.D.,* Director of the Biologic Products Division of the Michigan State Department of Health, Lansing, for seven years, has resigned to become Director of Biologic Products for E. R. Squibb & Sons, New Brunswick, N. J.

J. F. D. COOK, M.D.,† has been appointed Superintendent of the South Dakota State Board of Health and Deputy Director of Vital Statistics.

GEORGE F. FORSTER, PH.D.,† of Lansing, Mich., who has been engaged in research on pneumonia for the Department during the past two years, has resigned to become Assistant Director of the Laboratories of the Illinois State Department of Health, Springfield.

DR. GEORGE H. HILTS, of Bowbells, N. D., has been appointed Health Officer of Burke County.

R. H. MARKWITH, M.D.,* of Akron, Ohio, has been appointed as State Director of Health, succeeding WALTER H. HARTUNG, M.D.,* Dr. Markwith has been Health Commissioner of Summit County, including the City of Akron, for the past 17 years.

DANIEL W. MEAD,* Consulting Engineer of Madison, Wis., and former President of the American Society of Civil Engineers, received the Washington Award for 1939. The Western Society of Engineers make this award each year upon recommendation of a commission representing engineers' associations. In 1936 the American Public Health Association presented Mr. Mead with a certificate in recognition of his 44 years of continuous membership.

RICHARD SEARS, M.D.,† Epidemiologist with the Michigan State Department of Health and recently Acting Director of the Muskegon County Health Department, has been appointed Director of Health District No. 5—including Lake, Newaygo, and

* Fellow A.P.H.A.
† Member A.P.H.A.

Oceana Counties—with headquarters in White Cloud. He succeeds GUY R. POST, M.D.,† resigned.

WILLIAM D. STOVALL, M.D.,* of Madison, Wis., has resigned as Chairman of the Committee on Cancer of the State Medical Society of Wisconsin, after ten years' service.

FRED O. TONNEY, M.D.,* formerly Assistant Commissioner of Health and Director of Technical Research in Chicago, Ill., has been appointed Medical Officer to the Federal Trade Commission, Washington, D. C., for work in connection with the Wheeler-Lee Act pertaining to false and misleading advertising of foods, drugs, cosmetics and health devices, which becomes effective June 30, 1939.

DR. HENRY P. WORSTELL, of Columbus, Ohio, has been appointed Assistant Supervisor of the Medical Section of the State Industrial Commission, succeeding DR. ROY J. SECREST, who resigned to enter private practice in Columbus.

Eastern States

VIVIAN DRENCKHAHN, M.S., C.P.H.,† who for several years has been health teaching consultant of the Buffalo Tuberculosis Association, New York, has resigned to accept a position in health education sponsored jointly by the Kellogg Foundation and the University of Michigan. Her work will be limited to the 7 county area served by the Foundation, and will include courses for teachers-in-service, curriculum construction work and special studies among children, under the direction of HENRY J. OTTO, PH.D., of the Kellogg Foundation.

DR. JOSEPHINE EVARTS, of Cornwall Bridge, Conn., has been appointed Health Officer of Kent, Conn.

DR. WALTER S. LAY has been appointed Health Officer of Hamden, Conn.

RAYMOND E. LEACH,* Bacteriologist in charge of the District Public Health Laboratory, Kansas State Board of Health, Parsons, Kans., has resigned to accept a position in the laboratory of the Cattaraugus County Department of Health, Olean, N. Y.

FREDERIC W. NORDSIEK † has resigned as Executive Secretary of the New York Diabetes Association, a position he has held on a part-time basis since last April when he became Associate in the Department of Nutrition of the American Institute of Baking, New York, N. Y.

LAURA M. LONG RIEGELMAN, M.D.,† for the past 19 years Chief of the Bureau of Child Hygiene in Brooklyn, N. Y., retired December 31, after 40 years of service with the New York City Department of Health.

THOMAS M. RIVERS, M.D.,† of the Rockefeller Institute for Medical Research, has been appointed a member of the Board of Health of New York City.

DR. REUBEN ROTHBLATT has been appointed Acting Health Officer of Willimantic, Conn., succeeding DR. NATHAN M. SPECTOR, resigned.

DR. HOWARD G. STEVENS, of New Milford, has been appointed Health Officer of Sherman, Conn.

HELEN STACEY has been appointed as Nutrition Consultant for the Henry Street Visiting Nurse Service. Miss Stacey served as Nutritionist for the American Telephone and Telegraph Company for the past 10 years and was responsible for the development of a nutrition program for the women employees of the Bell System. She has also served as Nutritionist for the American Red Cross and the Association for Improving the Condition of the Poor of New York City.

---

* Fellow A.P.H.A.
† Member A.P.H.A.

DR. PAUL I. YAKOVLEV, of Waltham, Mass., has been appointed Clinical Director of the Walter E. Fernald State School, Waverley.

Southern States

WOFFORD E. BALDWIN, M.D.,† formerly Health Officer of Chester, S. C., has been transferred to Oconee County, with headquarters at Valhalla.

WILLIAM H. BALL, M.D.,† of Tampa, Fla., has been appointed Director of the recently organized health unit in Franklin and Gulf Counties.

DR. WILLIAM B. BONES, formerly of Monteagle, Tenn., has been appointed Associate in Charge of the Division of Child Hygiene of the Alabama State Department of Health.

DR. HENRY BRANDON, of Yadkinville, N. C., has been appointed Health Officer of Yadkin County, succeeding DR. LOCKSLEY S. HALL.

DR. HERBERT E. CANNON, of Covington, La., has been appointed in charge of a new health unit to be established in St. Tammany Parish.

DR. ROBERT A. CLANTON, of Grenada, Miss., has been appointed Health Officer of Grenada County, succeeding the late DR. THOMAS J. BROWN.

DR. THOMAS W. COLLIER, of Lyons, Ga., has resigned as Health Commissioner of Toombs County, to engage in private practice in Port Arthur, Tex.

JOSEPH RIGNEY D'AUNOY, M.D.,† of New Orleans, La., has been appointed by the Louisiana State University Medical Center to serve as a member of the board of the Guidance Center of the New Orleans Institute of Mental Hygiene.

DR. LITTLETON H. EUBANKS,† of Lexington, Miss., Assistant Health Officer in Lauderdale County, Miss., has been appointed in charge of the unit in Holmes County.

DR. ROBERT B. C. FRANKLIN, of Chapel Hill, N. C., has been appointed as Health Officer of Surry County, succeeding RALPH J. SYKES, M.D., resigned.

DR. THOMAS H. D. GRIFFITTS,† Director of the Henry R. Carter Memorial Laboratory of the U. S. Public Health Service, Savannah, Ga., has been appointed Acting City Health Officer.

DR. BENJAMIN F. HAND, JR., of Greenville, Miss., has been appointed Health Officer of Washington County.

GEORGE H. HAUSER, M.D.,† of New Orleans, La., has been appointed City Bacteriologist, succeeding the late WILLIAM H. SEEMANN, M.D.†

DR. JOHN H. HINES, of Atlanta, Ga., has been appointed Assistant Health Officer of Lauderdale County, with headquarters at Lexington, Miss., succeeding DR. LITTLETON H. EUBANKS.†

DR. WILLIAM H. KAEISER, of McAlester, Okla., has been appointed Health Superintendent of Pittsburg County.

NORRIS C. KNIGHT, M.D., C.P.H.,* of Clarkesdale, Miss., has resigned as Director of the Coahoma County Health Unit, to take charge of the unit in Lauderdale County, with headquarters in Meridian.

ALBERT MCCOWN, M.D.,† former medical director of the maternal and child health division of the Federal Children's Bureau, has been appointed Deputy Commissioner of the Michigan State Department of Health, effective February 1. Dr. McCown will direct the local health services of the department, aiding in coördinating the activities of the full time health departments and promoting the establishment of similar departments in the 24 counties not yet providing this service.

* Fellow A.P.H.A.
† Member A.P.H.A.

ROBERT S. MCGEACHEY, M.D.,† of Waldon, N. C., has resigned as Health Officer of Halifax County, to go to Craven County.

JOSEPH A. MORRIS, M.D.,† of Oxford, N. C., has resigned as Health Officer of Granville County, where he has served since 1919.

DR. THOMAS LON OWINGS, of Poplarville, Miss., is Acting Health Officer in Pearl River County, to relieve RANSOM J. JONES, M.D.,† Health Officer, who is on leave of absence for study at Johns Hopkins University, Baltimore.

DR. HENRY R. PERKINS, of Rockmart, Ga., has been appointed Health Officer of Abbeville and Laurens Counties.

DR. MAURICE C. PINCOFFS, Professor of Medicine at the University of Maryland and Instructor in Medicine at Johns Hopkins University, has been appointed a member of the Maryland State Board of Health. He succeeds DR. JOSEPH IRWIN FRANCE, who died recently.

GUY R. POST, M.D.,† of Holly Springs, Miss., Health Officer of Marshall County, has been appointed Director of the Coahoma County Health Unit, succeeding NORRIS C. KNIGHT, M.D., C.P.H.,* resigned.

BENJAMIN M. PRIMER, M.D.,* of Austin, Tex., has been appointed Director of the Travis County Health Unit, to succeed BOLIVAR J. LLOYD, M.D.,† resigned.

DR. DUDLEY A. REEKIE, of Louisville, Ky., Field Director of County Health Work in Kentucky, has been appointed Assistant City Health Officer of Atlanta, Ga.

MACK I. SHANHOLTZ, M.D.,† former health officer with the Health Unit in Bristol, Va., is now Director of the Commonwealth Fund Health Unit located in Seminole County, Okla.

DR. MURPHY M. SIMMS has been appointed Director of the Vermilion Parish Health Unit, Abbeville, La., succeeding DR. BENJAMIN O. MORRISON,† who was assigned as Director of the Acadia Parish Unit, with headquarters at Crowley.

DR. JOHN W. SPIES has been appointed Dean of the University of Texas Medical School and Professor of Public Health. Dr. Spies was formerly instructor in surgery and pathology at Yale University and associate professor of surgery at Peiping Union Medical College.

RALPH J. SYKES, M.D., has been appointed health officer for Halifax County, N. C.

K. L. K. WAERING, M.D., formerly Director of Hadsden County, Florida, has been appointed to take charge of the Duval County Health Unit, with headquarters in Jacksonville.

WILSON C. WILLIAMS, M.D.,* Assistant Professor of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville, Tenn., was recently reappointed State Health Commissioner.

Western States

DR. E. L. BERRY,† Director of the South Central District Health Unit, Idaho, has replaced DR. R. B. STUMP, who was granted an indefinite leave of absence. Dr. Berry has had a semester's training at the University of Michigan.

DR. GEORGE H. BISCHOFF, of Boise, Idaho, has been appointed temporary head of the Bannock County Health Unit, succeeding GLEN T. SMITH, M.D.,† resigned.

DR. DWIGHT M. BISSELL, of Pittsburg, Calif., has been appointed Health Officer in Monterey County, succeeding ROY M. FORTIER, M.D.,*

* Fellow A.P.H.A.
† Member A.P.H.A.

of Salinas, who has taken a leave of absence.

DR. BRYSON E. COX has been named City Health Officer of Coalinga, Calif.

DR. J. V. FOLEY, Director of the Bannock County Health Unit, Idaho, has replaced GLEN T. SMITH, M.D.,† who was granted an indefinite leave of absence. Dr. Foley has had one semester's public health training at the Harvard School of Public Health.

MAX B. MCQUEEN, M.D.,† Director of the North Central District Health Unit, Idaho, has replaced MARION W. CASKEY, M.D.,† resigned. Dr. McQueen has had a year's public health training at the University of California.

HERBERT L. NEWCOMBE, M.D., M.P.H.,† Director of the Kootenai County Health Unit, Coeur d'Alene, Idaho, has replaced LESTER C. KROTCHER, M.D.,* who has assumed the duties of Director of Local Health Administration. Dr. Newcombe has had a year's special training at the Harvard School of Public Health.

GLEN T. SMITH, M.D.,† of Pocatello, Idaho, has resigned to accept a hospital residency in Chicago, Ill.

DR. NORMAN F. SPRAGUE, of Los Angeles, Calif., has been appointed a member of the State Board of Health, succeeding DR. GEORGE H. KRESS, of San Francisco, now Secretary of the California Medical Association.

FOREIGN

PROFESSOR W. H. HOFFMANN, M.D., of the Finlay Institute, Habana, Cuba, has been nominated Honorary Member of the Robert Koch Institute of Berlin.

Death

C. T. COULTER, M.D., health officer of Malone, N. Y., died recently.

CONFERENCES AND DATES

American Association for Social Security. New York, N. Y. April 7–8.

American Association of Anatomists. Boston, Mass. April 6–8.

American Association for the Advancement of Science. Columbus, Ohio. December 27–January 2. (December 27, 1940, Philadelphia, Pa.)

American Association of Industrial Physicians and Surgeons—24th Annual Meeting. With the American Conference in Occupational Diseases and Industrial Hygiene. Hotel Statler, Cleveland, Ohio. June 5–8.

American Association of Pathologists and Bacteriologists. Richmond, Va. April 6–7.

American Association of the History of Medicine. Atlantic City, N. J. April 30–May 1.

American Association on Mental Deficiency. Chicago, Ill. May 3–6.

American Congress on Obstetrics and Gynecology—sponsored by the American Committee on Maternal Welfare, Inc. Municipal Auditorium, Cleveland, Ohio. September 11–15.

American Home Economics Association—32nd Annual Meeting. Gunter Hotel, San Antonio, Tex. June 20–23.

American Library Association. San Francisco, Calif. June 18–24.

American Medical Association, 90th Annual Meeting. St. Louis, Mo. May 15–19.

American Pediatric Society. Sky Top, Pa. April 27–29.

American Public Health Association. 68th Annual Meeting. Hotel William Penn, Pittsburgh, Pa. October 17–20.

American Public Welfare Association. Buffalo, N. Y. June 20–22.

American Society for Clinical Investigation. Atlantic City, N. J. May 1.

American Society of Heating and Ventilating Engineers. Semi-Annual Meeting 1939 (Great Lakes Summer Meeting). Grand Hotel, Mackinac Island, Mich. July 4–6.

American Standards Association. New York, N. Y. November 30–December 1–2.

American Water Works Association—59th Annual Meeting. Ambassador Hotel, Chelsea Hotel, Atlantic City, N. J. June 11–15.

Kentucky-Tennessee Section. Peabody Hotel, Memphis, Tenn. April 10–12.

Canadian Section. Royal York Hotel, Toronto, Ont. April 12–14.

Montana Section (following School for Water Works Operators, April 12–13). Park Hotel, Great Falls, Mont. April 14–15.

Illinois Section. Urbana-Lincoln Hotel, Urbana, Ill. April 20–22.

Indianapolis Section. Antlers Hotel, Indianapolis, Ind. April 25–26.

Ohio Section. Van Cleve Hotel, Dayton, Ohio. April 27–28.

Pacific-Northwest Section. Tacoma, Wash. May 18–20.

Association of American Physicians. Atlantic City, N. J. May 2–3.

Arizona Public Health Association. Phoenix, Ariz. May 5–6.

Building Officials Conference of America. Detroit, Mich. May 1–5.

California Sewage Works Association—11th Annual Spring Conference. Visalia, Calif. April 14–15.

Chamber of Commerce of the United States of America—27th Annual Meeting. Washington, D. C. May 2–4.

Civil Service Assembly—Eastern Regional Conference. Asbury Park, N. J. June 14–17.

Conference of Governmental Industrial Hygienists—Second Annual. Washington, D. C. April 26–28.

Connecticut Public Health Association. May.

Florida Public Health Association. Jacksonville, Fla. December.

Health Officers and Public Health Nurses—Annual Conference. Grand Union Hotel, Saratoga Springs, N. Y. June 27–29.

International Association of Public Employment Services. New Orleans, La. April 11–13.

International College of Surgeons—Biennial Assembly. Hotel Roosevelt, New York, N. Y. May 21–24.

International Congress of Military Medicine and Pharmacy — Tenth. (First meeting of this Congress, organized at the close of the World War, in the Western Hemisphere.) Hotel Willard, Washington, D. C. May 7–15.

May Day—Child Health Day. May 1. "The health of the child is the power of the nation."

Michigan Public Health Association. Lansing, Mich. November 1–3.

National Association of Sanitarians. Oakland, Calif. December.

National Boys & Girls Week Committee. 1939 Observance: April 29–May 6.

National Hospital Day. May 12.

National Conference of Social Work. Buffalo, N. Y. June 18–24.

National County Officers' Association. Ogden, Utah. July 17–19.

National Education Association, and affiliated organizations. San Francisco, Calif. July 2–6.

National Negro Health Week: April 2–9. Silver Anniversary Observance, April 1–30.

National Recreation Congress—24th. Theme: "Recreation and Democracy." Boston, Mass. October 9–13.

National Safety Congress and Exposition—28th. Atlantic City, N. J. October 16–20.

National Tuberculosis Association.